The Development of Children's Understanding of Death

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Abstract

This study explored British primary school-aged children's ($N = 92$) understanding of death as a biological event. By examining the impact of age, cognitive ability, religious beliefs, previous experience of death and/or serious illness, and socioeconomic status (SES) in one study, it was anticipated that a more detailed account of children's developing death understanding would be revealed.

Four groups of children (4-5 years, 6-7 years, 8-9 years, 10-11 years), were compared in relation to their acquisition of the five subcomponents of death, as assessed by the Death Interview (Slaughter & Griffiths, 2007). Consistent with a recent study (Panagiotaki, Nobes, Ashraf & Aubby, 2014), children aged 4-5 understood irreversibility first, and had started to grasp the ideas of applicability, cessation and inevitability. However, they had not yet developed what is considered to be a mature concept of death. Whereas the majority of 6-11 year olds understood the five subcomponents of death to varying degrees, with causality the last concept to be understood.

Knowledge of irreversibility changed in 10-11 year olds indicating a more sophisticated understanding. Explanations for death not being final were justified with religious/spiritual beliefs in an afterlife, and offered a dualistic approach to reasoning (Astuti, 2007). Children with a lower than average academic ability experienced difficulties understanding the death concepts, compared with average and high average achieving children.

These findings highlight that British children do develop their understanding of death at different rates according to their age and cognitive competence. More specifically, there was a marked change in children's understanding of death between the ages of 4-5 and 6-11, particularly in 10-11 year olds with reference to the idea that death is irreversible. This provides preliminary support for children's understanding of death developing according to a U-shaped curve rather than the staged model, as reported in previous literature.

Keywords: understanding of death; children; age; cognitive ability

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Chapter 1: Introduction

1.1 Overview

The development of children's understanding of death is still not clearly understood. There is considerable discrepancy between the reported ages at which children begin to understand what happens when someone dies, and when this is fully integrated into a child's conceptual framework. A number of inconsistencies exist across many of the published studies often relating to methodological shortcomings (e.g., small samples, limited age range), impacting on the strength of the research. These threats to external validity and the lack of consistent evidence to fully understand how children navigate the journey of loss and bereavement, is what has driven the focus of this research. Furthermore, a gap in the literature emerged, in that very little research has been published specifically on the development of British primary school-aged children's understanding of death. Gaining an insight into the ideas, thoughts and experiences of children across the developmental trajectory, living and being educated in the UK, is particularly important given the ever changing demographic landscape of this population.

The idea that children can conceptualise death as a biological event relates to the development of their knowledge of the human, animal and plant life cycles, and an understanding that death occurs through the cessation of biological functions required to support life (Carey, 1985). As it is understood that children acquire a mature understanding of death at different ages, children aged 4-11 years old were recruited to this study. Participants were allocated to one of four age groups (4-5 yrs., 6-7 yrs., 8-9 yrs., 10-11yrs.), and differences between these groups investigated. Furthermore, this study aimed to explore the impact of individual differences in

cognitive ability, previous experience of death and/or serious illness and socio-cultural factors on children's concept of death. Early Researchers at Great Ormond Street Hospital suggested that, "An understanding of the development of this concept is an integral part of our attempts to help children as they come to terms with death" (Lansdown & Benjamin, 1985, pp.13). It was therefore anticipated that the findings from this study will provide teachers, parents and health care professionals with current evidenced-based recommendations on how to discuss the issue of death, and support children through the bereavement process.

This introductory chapter will begin by providing an overview of the importance of researching children's understanding of death, outlining the clinical application, and current context within which the research is positioned. Charitable organisations providing support services and published guidelines for parents and professionals caring for grieving children, will then be discussed. Next, an historical account of the literature will be explored with reference to Piaget's stage theory of cognitive development, and neo-Piagetian theories of conceptual change. These ideas will be evaluated, and applied to children's understanding of death by presenting a conceptual framework based on multiple key theories shown to influence the acquisition of knowledge and skills in childhood. The death concepts literature will be critically reviewed, with emphasis on the impact of cognitive ability, previous experience of death and/or serious illness, and the role of religion, culture and socioeconomic factors. Finally, the assessment of death understanding will be evaluated, the rationale and aims for the current study, and research questions and hypotheses outlined.

1.2 Current Context and Charitable Organisations

It is reported that 9.5% of children in the UK will have experienced the death of a parent, sibling or friend by the time they reach the age of 16 (National Children's Bureau, 2009). Every 22 minutes a child in Britain is bereaved of a parent, which equates to approximately 24,000 children per year (Winston's Wish Charity, 2013). Given these statistics, it is essential that teachers, family members and health care professionals feel empowered and equipped with the necessary skills to face the difficult issue of death with children. Knowing how to talk about death to a grieving child, listening to their worries and concerns, with an awareness of the limitations of their understanding, is fundamental when supporting children through the bereavement process.

Children think quite differently to adults about death, based on their intellectual ability (e.g., comprehension, reasoning) and growing knowledge-base, chronological age, developmental stage, and previous experience of death (Edwards & Titman, 2010) . Our instinctive nature as adult care-givers is to protect vulnerable children from life's ups and downs, and the potential to mask or suppress the range of emotions (e.g., anger, denial, bargaining) that the death of a loved one can bring. By not approaching the child's loss in an idiosyncratic way, using an open and honest dialogue, there is a risk that children may feel emotionally excluded and unsupported through the bereavement process. Encouraging children to express themselves in ways that death makes sense to them, whilst teaching adaptive coping skills and increasing their self-esteem, reduces the negative impact of childhood loss on emotional well-being (Haine, Ayers, Sandler, & Wolchik, 2008).

The current availability of recommendations and best practice guidelines on how to sensitively engage children in discussions about what it means when someone dies, were established. This involved searching on websites of UK-based charities dedicated to supporting children, young people and their families. Helpful publications referring to how children and young people grieve (Adams, 2011), and children's understanding of death at different ages (Chalmers, 2011), have also been published. Winston's Wish is one such charity and offers advice to parents, schools and professionals on talking to children about death. They highlight the importance of the careful use of language when communicating with children to convey the absolute meaning of what is intended, removing any ambiguity or possibility of misunderstanding. Based on conversations with thousands of children and their families, Winston's Wish have also drawn some conclusions around how age can impact on a child's understanding, and emotional/behavioural responses to death. Unfortunately, these ideas are not supported by any research conducted by the charity nor has any other published research been referenced.

Age-appropriate leaflets produced by Child Bereavement UK, prepared with the help of bereaved families and support from the Department of Health, are a useful resource for parents, teachers, and health care professionals. By focussing their discussions on what it means when someone dies (e.g. it's not like being asleep), the range of emotions children may feel, and ideas for remembering the loved one can, guidance is now available. Lesson plans for supporting primary schools with starting conversations around the emotive subject of loss, death and dying, are also published on the Child Bereavement UK website. Although extremely helpful, once again the information provided is not evidence-based, and no published research is referenced.

The Daffodil Project set up by the Marie Curie Trust aims to introduce 10-11 year old children to the issues around death and dying by meeting with terminally ill people in their Newcastle hospice. This four-week course encourages children to "buddy up" with a patient to openly discuss and explore their understanding, as death is still often considered a taboo subject, particularly where children are concerned. Other services include Grief Encounter, a specialist bereavement service supporting up to 250 families per year, which also offers online resources including kid's zone and teen zone. It is one of the first services of its kind in the UK to offer e-counselling (using a webcam and skype) to young people living in rural locations or out of area who are not able to access the service in the usual way.

1.3 Historical Context – Piagetian Theory

Children's ideas around death and its consequences were understood to be conceptualised differently to adults (Anthony, 1939; Schilder & Wechsler, 1934), and the beginnings of a staged-model of death understanding emerged in the literature. In her seminal paper, Nagy (1948) analysed the responses of 378 children, and identified three developmental stages of death understanding. The first of which was that children under five do not recognise death as irreversible, and instead view death as a departure or sleep. Secondly, that between the ages of five and nine, death was not viewed as separate from life, considered gradual or temporary, and often involved the personification of death (e.g., grim reaper, death man). After the age of nine, death was recognised as a process by which the cessation of life occurs, and it was also understood to be universal and inevitable.

The idea that children develop their understanding of death through a process of developmental stages, moving from one stage to another, was later positioned with the framework of Piaget's Theory (1963) of Cognitive Development. This structuralist staged-model approach was adopted by early researchers, and studies began to show a relationship between cognition/reasoning ability, and children's understanding of death (Safier, 1964; Kastenbaum, 1967; Anthony, 1972; Koocher, 1973). The three stages of death understanding in Kane's (1979) study were understood at this time to be related to the *preoperational, concrete operational* and *formal operational* stages as suggested by Piaget (1963). Cognitive development as a process of skill acquisition through a series of age-related sequential stages, is still considered an important way of conceptualising children's understanding of death in mental health services (Carr, 2006), educational settings (Hopkins, 2002), and bereavement counselling (Webb, 2010; Worden, 2009), and therefore warrants further discussion and evaluation.

Piaget (1963) argued that cognitive development follows a logical sequential process with children progressing through each stage according to their age, and ability to successfully complete particular tasks (e.g., conservation, seriation). The first of these pre-determined stages, the *sensorimotor* stage, is from birth to two years, defined in terms of motor and sensory activities with little evidence of any abstract thought. The development of symbolic thought during the *preoperational* stage, from around two to seven years of age, is linked with the beginnings of early language acquisition and communication (Vygotsky, 1978). It was suggested that during this period children are unable to see the world from others' perspectives. However, the ability to empathise, referred to as Theory of Mind, is suggested to develop at this age (Baron-Cohen, Leslie & Frith, 1985). Furthermore, children in

this developmental stage often engage in magical thinking and hold the belief that their thoughts, feelings, wishes and actions can cause what happens to themselves and others. They may suppose that egocentrically, the death is of their own making or that they can wish the person back to life again (Andrews & Marotta, 2005). At seven years old children then move into the *concrete operational* stage, and their thinking becomes more logical and less egocentric, developing an awareness of the impact of external events.

By age 12, typical children can begin to think in an abstract manner, with the capacity for higher-order reasoning and hypothetical deduction. This *formal operational* stage is the final stage of cognitive development continuing into adulthood, and is characterised by increased reasoning and problem-solving ability, with the capacity to think in multiple dimensions (Smith, Cowie & Blades, 2011). This idea that children move through stages of cognitive development, characterised by increasing symbolic thought, and the ability to deal with more complex information, offers a valuable theoretical perspective for understanding what children think happens when someone or something dies. However, there is considerable ambiguity and variation around the specific cognitive achievements that are necessary for children to conceptualise death. Furthermore, children in the preoperational stages of cognitive development, with little understanding of concrete logic or empathy, were historically thought not to acquire a mature concept of death before the age of seven (Koocher, 1973; Kane, 1979).

Over the years, Piaget's methodology has been heavily criticised for being too exclusively verbal, with an absence of a statistical basis to his work. The majority of his core ideas are based on conversations, observations, and experiments, often with his own children (Beard, 1969). Moreover, there is considerable debate

around the idea that Piaget underestimated the abilities of young children, and the speed at which they process information (Fontana,1995). By approaching death understanding from the perspective that all children reach a particular stage of knowledge at a similar time in their development, individual differences and variability have largely been ignored. A further criticism of Piaget's structural theory is the lack of consideration for the role and influence of the environment and socio-cultural factors (Wood, 1998).

1.4 Neo-Piagetian Ideas

The cognitive functioning of a child at a given age may be so variable across the domains of knowledge that it is difficult to place them in any one stage (Case & Okamoto, 1996). This is the reason why neo-Piagetian researchers focussed on the processes through which children acquire skills and knowledge rather than just the acquisition of knowledge and skills at particular age-related stages. Emphasis was placed on how the developing brain changes as a result of maturation (e.g., increased myelination, neuronal growth), and information and social learning it is exposed to (Rogoff, 1998; Thatcher, 1992). Various models of information processing that highlight the way that different rules, strategies and theories are used to solve problems, have since influenced this area of cognitive development (Deary, 2000).

According to Central Conceptual Structures Theory (Case & Okamoto, 1996), the transition from one developmental stage to another in relation to children's thinking in different cognitive domains, is limited by the biological maturation of the brain. More specifically, the development of brain structures for working memory and information processing speed, perhaps one reason for the

considerable variation in children's thinking. This developmental variability has been conceptualised in terms of the overlapping waves theory (Siegler, 1996), and suggests that cognitive development is a process of variability, choice and change, and that children typically know and use varied strategies for solving problems. Progress reflects a back and forth approach, an oscillation between a variety of strategies to a more advanced integrative approach (Siegler, 2007).

In the context of a child who has experienced the death of a loved one, a number of competing ideas and strategies may be used in an attempt to cope with their loss, and make sense of their experience. These explanations may be related to a biological understanding that bodily functions sustaining life cease to exist. Religious/spiritual beliefs including the dead person living on in the afterlife, being reunited with loved ones, and ideas around reincarnation may also be referred to. With age comes advances in experiential learning, and the choice of strategies change and develop over time, enabling older children to be better equipped at thinking in dualistic terms, holding the view that there can be more than one explanation for what happens to someone when they die. It is also important to consider the impact of parental communication, children's emotion regulation skills, and school support on children's understanding the meaning of death and adjustment to loss. Attachment style, personality type, expressions of grief and spiritual connections have also been identified as individual differences influencing death understanding (Andrews & Marotta, 2005).

The development of young children's knowledge of the biological world links in with their understanding of death and what sustains life, through learning about the human body and its functioning. Conceptual change in childhood involves the modification of theoretical knowledge, and domain-specific structural

reorganisations to the developing child's conceptual system (Carey, 1985). As a result, there is a continued learning experience, updating of new theories, and the restructuring of the existing system of knowledge (Inagaki & Hatano, 2008). With this developing explanatory framework, the child is able to infer that if what sustains life (e.g., oxygen, water, food) is removed, the person will no longer live (Slaughter, 2005).

Children as young as 5 years old can make predictions embedded in their biological knowledge about the workings of the human body and its function (Inagaki & Hatano, 2002). However, at this age children prefer to use vitalistic explanations (e.g., food gives you power) rather than intentional (e.g., we eat food because it is tasty) or mechanical (e.g., we take food into the body, it is digested by the stomach and then we have energy). In Inagaki and Hatano's (2002) study, almost all children aged 5 to 6 years old predicted that stopping breathing would lead to death, but had difficulty justifying their responses and offered only a basic knowledge of respiration. However, Slaughter (2005) reviewed the literature and suggested it is at an even earlier age of 4 years old, that children begin to understand the biological workings of the human body. These differences may be related to the age at which lessons in animal, human and plant biology, including the life cycle, are taught in schools. The acquisition of the concept of living is therefore essential for the development of a naïve biology, which allows children to integrate what they know about life, health and illness, with the concepts of death (Hatano & Inagaki, 2002).

As this understanding of causality develops, death can be explained in terms of external causes (e.g., accidents, violence), and inner processes (e.g., disease, old age). In fact at an early age, children are intrigued about the physical aspects of

death and the rituals surrounding it, and tend to act these out in play (Edwards & Titman, 2010). However, their knowledge of the biological world is yet to develop, and their vitalistic explanations do not necessarily support causal inferences. Children are attempting to understand multiple, conflicting and often confusing ideas when they learn scientific concepts (Linn, Lee, Tinker, Husic & Chiu, 2006), and this may account for why younger children have a less sophisticated understanding of death as a biological event than older children. However, cross-cultural research concluded that it is not only knowledge of the biological processes that determines the individual, but the social processes that shape them (Astuti, 2001).

As a means of understanding a child's world based on what they know, and how they order the events that represent their experience, Script Theory developed (Nelson & Gruendel, 1986). Children can understand how familiar sequences of events unfold, and the way in which one event may predict the occurrence of similar events in the future. However, it is not clear whether new scripts develop with every new experience or pre-existing scripts change and are elaborated upon (Eiser, 1989). In beginning to grasp this idea, 4-year-olds are able to apply this process to different domains of knowledge but quite separately as though the information is stored in two separate files (Case & Okamoto, 1996). In contrast, 6-year-olds begin to display a more integrated system of knowledge storing information in a single file. Other important skill developments are the ability to formulate and hypothesise about causal processes by age 10, and the capacity for holding conflicting views and tolerating ambivalence (Davies, 2011).

Neurological changes may account for some of these cognitive changes given that increased connectivity and integration between the two brain hemispheres occurs between 4 and 10 years old (Hudspeth & Pribram, 1990). Furthermore,

accelerated growth of frontal lobe development, responsible for skills in problem solving, reasoning, and overall cognitive flexibility occur; the first of which at around age 6, the second at approximately 10, with a final spurt in early adolescence (Klinberg, Viadya, Gabrieli, Moseley & Hedehus, 1999). Consequently, children's death concept acquisition may be impacted upon by brain maturation, and significant differences in understanding appear to be evident between 6-year-olds and 10-year-olds. Older children are considered to be more reflective on the justice/injustice of death, connection with fate, parapsychological phenomena, and existential concerns of life and death (Dyregrov, 2008). As the developing brain also changes according to the input it receives in relation to learning (Elman, 1993), it is important to consider the degree to which cognitive change is influenced and stimulated by experiences.

The Zone of Proximal Development (Vygotsky, 1962), is a key theory to consider in relation to learning, and how the direction and support provided by an older peer or adult known as scaffolding, enhances children's understanding. By finding a balance between not underestimating or overestimating their ability, children can begin to develop the skills considered too difficult to master on their own. The child acts as if they are competent, developing the strategies needed by learning through imitation and internalising the cognitive processes provided by others. Throughout these guided experiences, children are encouraged to develop the expertise and culturally developed ways of thinking and learning (Wood, 1998). By responding to and developing in relation to their environment, the emphasis is placed on cultural and social factors in shaping their cognition (Vygotsky, 1978).

Consistent with these ideas, Rogoff (1990) described how children's cognitive development is an apprenticeship, and through guided participation from

more experienced and knowledgeable others, their understanding is extended. This suggests that development occurs by considering everyday activities and skills in the context of cultural goals, and advancing knowledge through shared problem solving. If children are not permitted to engage in rituals around death, and observe the interactions of others (e.g., at the funeral), it is proposed that their understanding of death will be less developed. Given that all human behaviour is embedded in context, the development of children's understanding of death will be impacted upon if they are not given the opportunity to process their loss in the way in which adults do.

Furthermore, it is proposed that children with previous experience of death, who have been scaffolded in developing their understanding of the meaning and consequences of death, will accelerate their learning as a result. By engaging with more knowledgeable others in conversations about what it means to be dead or what happens to a person when they die, children may be more sophisticated in their understanding. Open/direct communication, being informed of the causes of death, and involvement in rituals (e.g., viewing body, funeral, cremation) are all important stages of grieving, impacting on the development of a child's reasoning about death. This idea allows for a more comprehensive account of how children make sense of the key concepts related to life and death, and how it develops with the expertise and support of others. This is further supported by the literature suggesting that children with previous experience of death are more likely to have a mature concept of death than those who have not (Hunter & Smith, 2008).

1.5 Death Concepts Literature Review

The literature suggests that irreversibility and universality are thought to be understood first, yet these concepts are still not fully grasped until at least five or six years old (Koocher, 1973; Kane, 1979; Speece & Brent, 1992). Andrikopoulou (2004) examined five year old children's ($N = 50$) understanding of death and found that causality, irreversibility, and universality were easier to understand than finality, with only 46% of children grasping this last concept. Causality is considered to be fully understood and integrated into a child's conceptual framework last (Slaughter & Lyons, 2003; Slaughter & Griffiths, 2007). Being the most abstract idea, it requires a complex knowledge of the biological workings of the human body. It could be as late as 9 or 10 years old (Carey, 1985), or as early as 4 to 6 years old (Carey, 1999), that children have acquired fully causal explanations for the biological world. A further estimate of when children demonstrate a solid biological understanding of both human and animal death is at age 7 (Astuti & Harris, 2008). In terms of children's ability to learn new concepts, and in the absence of a biological knowledge, young children interpret what they know about death in the context of their understanding of human behaviour (Slaughter, 2005). For example, to stay alive a person needs to eat, drink, breathe and sleep but there is no more detailed understanding of this other than at a basic level. With a limited capacity for emotional awareness and cognitive reasoning, they often associate death with going to sleep (Carey, 1985; Slaughter, Jaakkola and Carey, 1999) or a separation where the person continues to live on in the afterlife (Candy-Gibbs, Sharp & Petrun, 1985). However, more recently 4-year-old children were able to distinguish sleeping from being dead, and understood death in animals and humans as the cessation of the ability to act (Barrett & Behne, 2005).

In a study using puppets to depict stories of death, 78% of 4-6 year olds gave correct responses for cessation, defined as the discontinuity of biological functioning (Bering & Bjorklund, 2004). This is the vast majority of 4-6 year-olds and suggested that from as early as 4-years-old most children can reason about cessation. Only 22% of children may have engaged in wishful thinking, hoping that the mouse in the puppet show will live on even if the alligator eats him up. However, there may be some confusion distinguishing fantasy from reality and the inanimate mouse may not actually be perceived as being dead (Siegal, 2008). It is therefore questionable as to whether this is a true reflection of children's understanding of cessation. When the death interview was administered in a recent study (Slaughter & Griffiths, 2007), only 69% of 4-8 year olds consistently stated that bodily and mental processes cease to function after death. The use of a more robust methodology to assess death subcomponent acquisition rather than thoughts around the death of fictitious "toy" characters in a puppet show may be the reason for the differences in understanding between these two studies.

In Slaughter and Lyons (2003) study, irreversibility and cessation were significantly easier to grasp in 3 to 5 year olds ($N = 60$) than applicability and causality, as measured by the death interview. Furthermore in this study, training on human body functioning improved children's understanding of death as a biological event, compared with a matched control group. Overall, age was not related to children's death concept acquisition, neither was cognitive functioning, as measured by class inclusion tasks. However, Piagetian tasks often use confusing language that may underestimate children's ability to recognise concepts, and there is the assumption that cognitive ability can be derived from one cognitive task (Chandler,

1991). This could be the reason why cognitive ability was not significantly associated with children's understanding of death in this particular study.

A similar pattern emerged in 90 children between the ages of 4 and 8 years old who participated in a study exploring understanding of death, and the association with fear of death (Slaughter & Griffiths, 2007). The mean scores on the death interview indicated that irreversibility was understood first, then cessation, inevitability, causality and finally applicability. This study concluded that the majority of these children had not yet developed a fully mature concept of death. However, the conceptual validity of this maturity model is questionable as some children do have religious and/or spiritual explanations for death and if expressed would result in a lower score on irreversibility and cessation. Holding a dualistic view of death has been viewed as a misconception by researchers and parents, and therefore a less well developed understanding of death is assumed (Nguyen & Rosengren, 2004). This study concluded that death understanding was significantly positively correlated with age, and highlighted the potential impact of cognitive development, cultural background, and personal experience of death.

Hunter and Smith (2008), reported that in a sample of 37 children aged 4-7 years old, the mean age for understanding irreversibility, nonfunctionality and universality was 6 years old. Children's ability to seriate was associated with an understanding of all subcomponents other than nonfunctionality, and conservation linked to inevitability. However, children were assessed by answering four closed questions offering yes or no responses, with no qualitative information to clarify their understanding. Furthermore, the relevance of skills in seriation and conservation to acquire an understanding of death is still unclear, and the small sample size in this study reduces the generalisability of findings . It is therefore

difficult to draw firm conclusions from this study about the age at which children first begin to understand the finality of death (irreversibility), that all bodily and mental processes stop (nonfunctionality), and that death happens to all living things (universality).

In a sample of 163 children aged between 6 and 11 years old, the 6-7 year olds found it more difficult than 8-11 year olds to grasp irreversibility (Labrell & Stefaniak, 2011), and this concept was still not understood by all children at age 11. However, this study used an unstandardised questionnaire, and only questions about plant and animal death were asked as it was considered unethical to ask younger children about their understanding of human death. As a result, the validity and reliability of these findings are questionable. However, the larger sample size, and use of analysis of variance (ANOVA) to test hypotheses as opposed to correlation or repeated *t*-tests, which increases the probability of a Type I error, is an improvement compared with previous studies.

In another study, 6-year-olds' ($N = 20$) and to some extent 4-year-olds' ($N = 30$) knowledge of universality, inevitability, finality and causality was understood in the context of plants and animals, but not artifacts (Nguyen & Gelman, 2002). This research suggests that important changes take place between the ages of 4 and 6 years, as it is crucially at this time that an understanding of death as a biological event begins to develops. This is consistent with Slaughter et al. (1999), who also found significant differences in children's understanding of the concepts of life and bodily functioning between the ages of 4 and 6 years old. In a more recent study, 4-7 year olds ($N = 188$) understood inevitability, applicability and cessation either at the same time as or after irreversibility, and before they could grasp causality (Panagiotaki et al., 2014).

When it comes to a mature concept of death, Slaughter (2005), in an historical review of the literature, suggested that children acquire all five subcomponents of death, and hence a mature concept of death as a biological event by age 7. In contrast, Speece and Brent (1984) reviewed 35 published studies and concluded that overall, children in modern urban societies acquire a mature concept of death earlier, between the ages of 5 and 7. However, an understanding of causality was not assessed in the majority of studies reviewed. In a recent study, the majority of 4 to 8 year olds had in fact not yet developed a fully mature understanding of death (Slaughter & Griffiths, 2007). One explanation for this may be that children who hold religious views about the afterlife are more likely to state that bodily and/or mental functions continue after death (Bering, Blasi & Bjorklund, 2005). Furthermore, the literature suggests a dual conception of death in relation to a belief in the afterlife with mental processes continuing (Harris & Gimenez, 2005; Astuti & Harris, 2008), and the person living on in the afterlife (Candy-Gibbs et al., 1985). Consequently, there is considerable variability in the construct of death understanding, categorically stating the age at which maturity is reached, and the meaning associated with this.

1.6 Factors Impacting on Death Concept Acquisition

Cognitive ability, as measured by Piagetian cognitive tasks of seriation and conservation, has recently been explored in 4-7 year old children (Hunter & Smith, 2008). An understanding of all five subcomponents other than cessation was associated with children's ability to seriate, and conservation linked with inevitability. Furthermore, cognitive ability as assessed by a conservation task has

been identified as the best predictor of death understanding (Cotton & Range, 1990). However, there is still considerable debate around the idea that Piagetian tasks underestimate the abilities of young children, and the speed at which they process information (Fontana, 1995). It would therefore be tenuous to suggest that children's death understanding is associated with one specific skill in the process of learning.

In an improvement on assessment techniques, 32 children aged 6-12 years old were administered the Peabody Picture Vocabulary Test (PPVT), and subtests from the Wechsler cognitive assessments (Jenkins & Cavenaugh, 1986). The findings suggested that verbal ability and age were the largest contributors to variance in death understanding. However in this study, the predictor variables were highly correlated and the sample size small, limiting the generalisability of the findings. In contrast, there was no association between IQ and death understanding in a study of 54 children aged 6-11 years old who were assessed using the verbal subtests from the Wechsler cognitive assessment (Orbach, Weiner, Har-Evan & Eshel, 1995). With restricted variability in IQ scores, indicating lack of homogeneity of variance across the sample, conclusions from this study are limited.

It is unclear from the above studies whether cognitive ability has a significant influence on children's developing understanding of death. The wide variation in choice of assessment measures, many of which are unstandardised, and subject to researcher bias, make it difficult to draw firm conclusions. However, the following factors are directly related to the developing cognitive abilities of children, and could be hypothesised to play an important role in their death understanding: increased connectivity between brain hemispheres (Hudspeth & Pibram, 1990), frontal lobe development (Klinberg et al., 1999), storage and integration of information (Case &

Okamoto, 1996), development of strategies, rules, and explanatory frameworks (Siegler, 2007), modification of theoretical knowledge in the developing conceptual system (Carey, 1985), the development of a naïve biology to support causal inferences (Inagaki & Hatano, 2002), ability to hold conflicting views and tolerate ambivalence (Davies, 2011), and the input of learning to stimulate cognitive change (Elman, 1993).

As children's thinking in different cognitive domains is viewed as an expression of developing mental structures, and limited by brain maturation (Case & Okamoto, 1996), then it could be suggested that children with neurodevelopmental disorders (e.g., learning disabilities, children on the autistic spectrum,), acquired brain injury and learning difficulties (e.g., reading, writing), may have difficulty with understanding the concepts of death. The psychosocial risk factors considered to impact on typical cognitive development include child abuse and neglect, inadequate/unavailable parenting (due to mental health difficulties, addictions), and institutional upbringing (Friedman & Chase-Lansdale, 2002). Furthermore, frequent hospitalisations and recurrent ear infections in early childhood are hypothesised to contribute to inconsistent learning opportunities and disruption to the development of thinking and reasoning skills. Consequently, these experiences may impact children's ability to make sense of what happens when someone or something dies, and processing their loss event may be even more confusing and distressing without the appropriate support.

Children with learning disabilities are generally delayed in areas of cognitive development and are known to have difficulties with communication (e.g., expressive/receptive language disorder), and adaptive behaviours (e.g., behaviours necessary for people to live independently and function safely). As there are

information processing differences in children with learning disabilities to that of typically developing children, understanding the concept of death may present a difficult challenge. The published literature on death understanding in children with learning disabilities is extremely limited. However, in the adult literature, bereavement reactions are not necessarily related to cognitive ability (Brelstaff, 1984), and it may be other people who view the person with the learning disability as not being able to understand death (Oswin, 1991), resulting in a lack of emphasis in supporting participation in dealing with loss (Hollins & Esterhuyzen, 1997). A recent study confirms the importance of ensuring people with learning disabilities have a good understanding of the concept of death to support the bereavement process (Ryan, Guerin, Dodd & McEvoy, 2010). This can be fostered by developing accessible information about death with greater use of visual representations, less reliance on written language, and preparation for involvement in the funeral rites.

Children on the autistic spectrum tend to think and reason in very concrete terms, have poor ability to integrate information from the environment into a meaningful whole (Frith, 1989), and difficulties with cognitive flexibility (Ozonoff & Jensen, 1999). In addition, it is suggested that due to social communication difficulties, social experiences and learning are limited, which has a negative impact on the development of neural systems in the brain (Dawson et al*.,* 2005). With reference to death understanding and adjustment to serious or life-limiting illness, linking a loss to an identified feeling and expressing this can be too difficult for children on the autistic spectrum, when there is a struggle to process events and emotions (Grey, 2010). This certainly suggests that differences in the way children on the autistic spectrum view and navigate the world could have a significant impact on their ability to cope with the death of a loved one. Considering that children are

often not diagnosed with high functioning autism until middle to late childhood, they may face their emotional distress alone, confused and misunderstood, without the necessary support structures (e.g., parent knowledge, school strategies) in place.

Consistent with Inagaki and Hatano (2002), the role of experience on knowledge acquisition is also highlighted, given that children with previous death experience develop a more mature concept of death than those who have not (Hunter & Smith, 2008). More specifically, prior experience of death in the extended family and the death of a pet was associated with an understanding of applicability. However, the sample size was too small to detect a relationship between previous experience of death in the immediate family and death understanding (3 out of 37 children experienced a death in the immediate family). In contrast, children with previous experience of death (26 out of a total sample of 52) appeared to have a more realistic understanding of death compared to their peers without such experience (Bonoti, Leondari & Mastora, 2013).

Previous experience of death has also been associated with a less well developed understanding of inevitability and causality (Cotton & Range, 1990). However, in this study parents of the children who participated were enrolled on a bible study program, and religious beliefs suggesting that not all living things die (e.g., God), may have contributed to misunderstandings around inevitability and causality. Consequently, it is not possible to isolate whether previous experience of death or religious beliefs impacted on children's knowledge of causality and inevitability. There may in fact be an interaction between these two factors, which could warrant further exploration.

In contrast, 3-6 year old children in a oncology group who had previous experiences of death, were more likely to understand the concepts of universality and

irreversibility (Jay, Green, Johnson, Caldwell, & Nitschke, 1987). However, these children were terminally ill with cancer, which may have been the mediating factor for an increased knowledge-base. In a study of 3-9 year old children with leukaemia, it was revealed that they were all aware they were dying, and had different ways to express this awareness (Bluebond-Langner, 1978). Furthermore, children's understanding of their own death may also be dependent on contact with other patients who are dying, and overhearing adult conversations about terminal illness and death (Fredman, 1997). However, it is not clear whether these kinds of discussions around death and dying were openly engaged in. In contrast, 21 children with leukaemia aged between 4 and 9 did not differ significantly from healthy children in their conceptual development of death (Clunies-Ross & Lansdown, 1988). Given it is not entirely clear from the literature how previous experience of death and serious illness impacts on children's concept of death, these ideas were explored further in this current study.

Children with a chronic illness demonstrate systematic differences in general reasoning skills, and in their understanding of concepts about illness causality, compared with healthy children (Perrin, Sayer & Willett, 1991). Furthermore, when levels of cognitive reasoning were statistically controlled in this study, children with a chronic illness also had more knowledge of concepts of bodily functioning than did healthy children. However, in a review of the literature on death understanding and children's illness types, both chronically ill children and healthy children appeared to require certain age and development levels to understand the concepts of death (O'Halloran & Altmaier, 1996). Children with terminal illness showed a more complex understanding of the death concepts, more specifically irreversibility. Perhaps dying children have a more sophisticated knowledge of illness causality and

the finality of their impending death if they have engaged in clear and open communication with adults about their illness. It is important to consider that this facilitating effect may be also be dependent on the nature, severity and duration of the illness, in addition to the age of the child (Crisp, Ungerer & Goodnow, 1996).

An understanding of the concept of death is not only influenced by experience of death and/or serious illness and cognitive development but also by culture (Linebarger, Sahler, & Egan, 2009), and religious beliefs (Harris & Gimenez, 2005; Astuti & Harris, 2008; Barrett & Behne, 2005). A recent study suggested that it is culturally specific experiences, particularly those relating to urban compared with rural living, as opposed to religious beliefs, that impact on cognitive reasoning (Panagiotaki et al., 2014). Muslim children living in rural Pakistan understood irreversibility earlier than British children living in London, potentially as a result of increased exposure to death in their daily lives (e.g., poverty, limited access to health care). Furthermore, it may be that different cultures construct different experiences for their children, and this has consequences for both what and how children learn about death.

In a review of the literature (Kenyon, 2001), it was concluded that more similarities than differences in children's death understanding existed cross-culturally, and beliefs in the afterlife impacted on knowledge of irreversibility. This has also been observed in children who were raised in the Baptist religion with a belief in the afterlife. Whereas children with Unitarian beliefs, who do not emphasise the existence of an afterlife, had a more well developed understanding that death is the complete and irreversible cessation of biological functioning (Candy-Gibbs et al., 1985). Furthermore, children who hold religious views about the afterlife are more likely to state that functions (e.g., seeing, hearing, dreaming)

continue after death (Bering et al., 2005). It is likely that as children develop, they begin to experience existential concerns of life and death, and ideas around their own mortality. The view of a life after death is comforting, and allows for children to engage in a dualistic reasoning process, enhancing their spiritual understanding and affecting their view of the world (Gersch, Dowling, Panagiotaki & Potton, 2008).

Spanish children aged 7 ($N = 24$) and 11 ($N = 24$) were asked questions about death in the context of two different narratives; one described the death of a grandparent within a secular context, and the other within a religious context (Harris & Giménez, 2005). In contrast with previous research, older children were less likely than younger children to claim that bodily functioning and mental processes cease (cessation) after death. This was particularly so in the context of the religious narrative, when a metaphysical concept of death (e.g., "The spirit is out there and keeps feeling", "When she dies and goes to heaven, God will give her a brain again") was more often referred to. However, both groups of children appeared to have an understanding of death from a dualistic approach, in that they could hold two different opposing explanations for death at the same time. This suggests that a biological and religious understanding of death can therefore co-exist, and that children's developing knowledge is impacted upon by socio-cultural factors and learning from others in the family/community (Wood, 1998; Rogoff, 1990). Furthermore, anthropological research suggests that biological and spiritual dimensions co-exist in making sense of death, offering an alternative explanation to that of finality (Astuti, 2007).

In a study of children living in rural Madagascar, in a community where ancestral beliefs and practices are widespread, participants aged 8 years and over understood that bodily and mental processes cease at death (Astuti & Harris, 2008).

However, in the context of a "tomb" story, offering participants the idea of a life after death for the ancestors, children were not as certain about the discontinuation of life. Furthermore, it was more common for bodily rather than mental processes to cease at death. In the second part of this study, 7yr olds consistently claimed that bodily and mental processes cease at death, whereas 5yr olds were inconsistent in their replies. The older children did not however make a distinction between bodily and mental processes, indicating that at this age they understood death in more general terms. This study concluded that once a fully developed biological understanding of death has been integrated into a child's conceptual framework, a belief in the afterlife is especially likely to emerge in children who engage in spiritual beliefs of the ancestors.

Across two very different cultures, rural Ecuador and urban Germany, in children aged 3 to 5 years old, the developmental trajectory for distinguishing between sleep and death was identical (Barrett & Behne, 2005). This suggests that death, as the cessation to act, is shared cross-culturally, despite differences in religious beliefs and attitudes towards death. Although it would seem that younger children developed the ability to discriminate between living and dead animate/inanimate objects, the updating and modification of knowledge is a continual process (Carey, 1985). Given the likelihood that these two cultures construct experiences differently for children, the influence of experience on knowledge acquisition at this early stage of death understanding appears not to be significant. This is interesting given that the German children's experience of animals was confined to keeping pets, visiting the zoo, and seeing animals on television. Compared with the Ecuadorian Shuar children living in a hunter-horticulturalist community in the Amazon who would be exposed to many different

species of animals both dead and alive. This would suggest that an understanding of death, as the cessation to act, is a cross-cultural concept, which may have developed as an evolutionary approach to survival, and is not dependent on context.

Socioeconomic status (SES) is another factor considered to impact on the development of children's understanding of death and illness. It has been suggested that parents with a higher level of education are more likely to stimulate their child's development of illness knowledge (Lau, Bernard & Hartman, 1989), and actively teach their children at home, offering them greater opportunities for learning (Case & Okamoto, 1996). Furthermore, children from a higher SES are less dependent and passive in their views of the causes of illness (Shapiro, 1983). In contrast, poor urban children have a less developed understanding of death (Tallmer, Formanek & Tallmer, 1974; Atwood, 1984; Lau et al., 1989).

The reason for the SES differences in children's understanding of death could be related to better educated, wealthier parents, being more engaged and available (e.g., not overworking), offering more opportunities for scaffolding and extra-curricular learning. These parents may have a greater awareness of the importance of continued education, life experience, and open communication with their children around illness and death. Furthermore, children from a higher SES may be born to parents later in their life, and therefore experience the death of family members (e.g., grandparents) earlier, advancing their understanding of death. The developmental profile of low-SES children suggests that their cognitive functioning is on average below optimum level, and the experiences these children encounter to stimulate their natural curiosity variable (Case & Okamoto, 1996).

The literature exploring the impact of SES on children's death understanding is limited, with very few published studies exploring SES in a systematic way. Vlok

and de Witt (2012), suggest that it is a combination of education and culture in addition to SES factors that impact on children's ability to construct a naïve theory of biology, as an explanation for causes of death. The impact of differences in the school curriculum (e.g., religious education encouraging questions about life after death, biological aspects of the life cycle), are also important factors to consider in the development of knowledge and concepts across domains.

1.7 Assessment of Death Understanding

During the 1970's researchers were keen to explore how children's understanding of death developed, particularly with reference to Piaget's (1963) theory of cognitive development, which offered a developmental framework within which to contextualise the research findings. Methods for assessing children's knowledge of death were developed, and the preferred approach of structured interviews further refined, with questions designed to elicit children's understanding of the death concepts (Slaughter, 2005). This historical review of the literature referred to researchers being inconsistent in their approach to the methodology, overlapping subcomponents of death existed, and measures were not standardised. However, unstandardised methods (e.g., children's drawings, puppet shows, narratives) for accessing children's understanding of death, have been in constant use since interest in this field of psychology developed.

The death interview used in the current study was developed by Slaughter and Lyons (2003) for their study published in the peer reviewed journal Cognitive Psychology. The questions were based on previous research (Koocher, 1973; Smilansky, 1987), and following pilot work to assess children's capacity to reflect

on the selected components of death, the practicality of the measure and effectiveness of scoring criteria, this interview was deemed appropriate for their study. Psychometric properties (e.g., test-retest reliability) for the death interview were referred to in a later study exploring young children's (N = 90) death understanding and fear (Slaughter & Griffiths, 2007). However, this information is not published in Slaughter and Lyons (2003) journal article where it is cited from. There is also no reference to psychometric properties for the death interview used in a recent study assessing British and Pakistani children's (N = 188) understanding of death (Panagiotaki et al., 2014), published in the British Journal of Developmental Psychology. Consequently, there is a lack of published data for the death interview and the reliability and validity of this measure is questionable. However, on discussion with research supervisors, it was deemed appropriate to use this measure in the current study.

1.8 Five Subcomponents of Death

A mature understanding of death as a biological event is considered to be the acquisition of all five subcomponents of death. These are irreversibility, applicability, inevitability, cessation and causality as assessed in previous studies by the death interview (Panagiotaki et al., 2014; Slaughter & Griffiths, 2007; Slaughter & Lyons, 2003). *Irreversibility* also referred to as *irrevocability or finality,* has been defined as the understanding that once a living thing dies it cannot come back to life again, and is often the first concept to be understood (Panagiotaki et al., 2014; Slaughter & Griffiths, 2007). In this current study, children were asked, "Can a dead person ever become a living person again?" to which some children in this study

replied with "Possibly, if they're not dead for too long they can be brought back to life" and "Yes, they can come back to life to be judged". In these examples, an understanding of irreversibility appears to be influenced by ideas about the success of medical interventions, and religious beliefs related to the judgement of how a person lived in this life impacting on how they are received in the afterlife. This is consistent with recent research indicating that children who hold religious views are more likely to state that once a person is dead they may come back to life as mental processes continue to function after death (Astuti & Harris, 2008; Harris & Gimenez, 2005).

This relates to the next concept of death referred to as c*essation* or *nonfunctionality*, and is defined by all bodily and mental processes (e.g., breathing, eating, speaking) ceasing to function after a person has died. Children were asked, "When a person is dead, do they need food? Do they need to go to the toilet? Do they need air? Can they move around? Do they have dreams? Do they need water?". The majority of 4-6 year olds are thought to understand this concept (Bering & Bjorklund, 2004). However, 22% of children engaged in wishful thinking, hoping that the mouse in the puppet show would come back to life. This is consistent with the Slaughter and Griffiths (2007) where 31% of children stated that mental processes continue after death.

The idea that people eventually die has been conceptualised as *inevitability*, and children were asked, "Tell me some things that die". Children are considered to have a complete understanding, if people are mentioned as dying, and all people are reported to die. This is usually understood by most children at the same time as they acquire their knowledge of cessation and applicability (Panagiotaki et al., 2014). *Applicability,* also referred to as *universality,* is the idea that death must happen to all

living things (e.g., people, animals, plants) and not to non-living things (e.g., books, bricks, fences). This concept is assessed by asking the question, "Tell me some things that don't die?", and is suggested to be understood by children by the age of 6 years old (Hunter & Smith, 2008).

The final concept of death to be understood is c*ausality,* defined as an understanding that death is caused by a wide variety of external and internal events and is as a result of the biological consequences of such events. Two questions were asked for causality "Can you tell me something that might happen that would make someone die?" and "When (the event described previously) happens, why does that person really die?". A complete understanding of this concept would be a child describing how the death occurred and the biological cause. For example, an 8 year old participant responded with, "If an elderly person has an illness, maybe a heart attack, the heart stops beating, and no more blood pumps round the body, and they can't breathe". A less developed understanding of causality would be "Cancer is an illness but I don't know how it makes someone die. My aunty is 39 and she died of cancer". This participant is able to provide a reason for her aunty dying but is not clear on the biological processes involved in the cause of death. This is the most complex concept to grasp and is considered to be understood last (Panagiotaki et al., 2014).

1.9 Methodological Issues and Limitations of Existing Research

There are a number of methodological issues that impact on the strength of the research discussed, and concerns around the reliability and validity of the findings. Small sample sizes exist across many of the studies, resulting in low power

and possible Type II errors, with a reduced potential to generalise findings. The use of unstandardised measures to assess children's understanding of death is widespread (Bering & Bjorklund, 2004; Barrett & Behne, 2005; Hunter and Smith, 2008). Many of the studies (Reilly, Hasazi & Bond, 1983; Cotton & Range, 1990; Mahon, 1993) used Piagetian tasks to assess cognitive ability, which often underestimates children's intellectual abilities (Chandler, 1991). Where measures of IQ have been used, the sample sizes are small ($N = 37$) and predictor variables highly correlated (Jenkins & Cavenaugh, 1986), and the range of IQ scores restricted (Orbach et al., 1995), reducing the validity of the results.

Another key problem exists around the measurement of the construct of children's death understanding, with studies using existing measures that have been adapted or creating unstandardised methods of assessment. For example, asking children to draw their impression of death (Bonoti et al., 2013), reading a narrative about either a corpse (secular) or tomb (religious), and responding to questions (Astuti & Harris, 2008), reading a narrative about the death of a grandparent, related either to a secular or religious context (Harris & Gimenez, 2005), and portraying death using a puppet show where a mouse was eaten by an alligator (Bering & Bjorklund, 2004). Furthermore, there is a lack of consistent findings in terms of the impact of religion, SES, previous experience of serious illness and/or death, which highlights the importance of systematically exploring these ideas in one study.

1.10 Summary of Previous Findings

A mature understanding of death as a biological event, is considered to be the acquisition of all five subcomponents of death, as identified in previous studies

(Slaughter & Lyons, 2003; Slaughter & Griffiths, 2007), and is considered to be a staged model of development. The literature suggests that a mature concept of death did not get fully assimilated into a child's conceptual framework before the age of 7 (Koocher, 1973; Kane, 1979). However, in 4-8 year olds most children had yet to develop this comprehensive level of understanding (Slaughter & Griffiths, 2007). As a consequence of religious and cultural beliefs in the afterlife, there is considerable variability in the age at which a complete understanding of death is acquired, particularly with reference to irreversibility.

In terms of the order in which the concepts of death are acquired, irreversibility and cessation were significantly easier to grasp than applicability and causality (Slaughter & Lyons, 2003; Slaughter & Griffiths, 2007). In a recent study, there was less variation in that inevitability, applicability and cessation were understood either at the same time or after irreversibility, and causality the last concept to be understood (Panagiotaki et al., 2014). Children as young as 4 years old were able to distinguish sleeping from being dead, and understood death in animals and humans as the cessation of the ability to act (Barrett & Behne, 2005), and the discontinuity of biological functioning (Bering & Bjorklund, 2004). Causality is considered to be fully understood last, and it is the most abstract idea, requiring a sophisticated biological knowledge of the workings of the human body (Slaughter & Griffiths, 2007). This could be as early as 4 to 6 years old (Carey, 1999), at around the age of 7 (Astuti & Harris, 2008), not before the age of 8 (Panagiotaki et al., 2014), or as late as 9 or 10 years old (Carey, 1985).

There are several inconsistencies in the literature given that IQ and death understanding do not appear to have any association (Orbach et al., 1995), in contrast

to verbal ability and age being identified as the largest contributors to variance in death understanding (Jenkins & Cavenaugh, 1986). More recently, cognitive ability was associated with children's understanding of the subcomponents of death, as measured by two Piagetian tasks (Hunter & Smith, 2008). Furthermore, children with previous experience of death were considered to have a more realistic understanding (Bonoti et al., 2013), and more likely to grasp the concepts of universality and irreversibility (Jay et al., 1987), than those without such experience. However, previous experience of death has also been associated with a less well developed understanding of causality and inevitability (Cotton & Range, 1990). In the literature there is also conflicting evidence suggesting that children with experience of a serious illness are more advanced in their death understanding (Perrin et al., 1991; O'Halloran & Altmaier, 1996), and are no different to that of healthy children (Clunies-Ross & Lansdown, 1988).

Children who hold religious views are more likely to say that bodily and/or mental functions continue after death compared with those children who are not religious (Candy-Gibbs et al., 1985; Bering et al., 2005). However, death as the cessation to act is shared cross-culturally, despite differences in religious beliefs and attitudes towards death (Barrett & Behne, 2005). And finally, with reference to SES more conflicting evidence exists; a higher SES is associated with a more developed understanding of death (Lau et al., 1989). However, biological knowledge appears to emerge later in urban middle-class children in the USA (Carey, 1985), and poor urban children have a less developed understanding of death (Atwood, 1984).

Significant discrepancies have been highlighted in relation to the age at which a mature understanding of death as a biological event is finally acquired, and given it is still not clear, further exploration is required. It is also not clear how

children growing up in 2014 in multicultural UK conceptualise death, and whether there exists any inherent differences compared with earlier research. With many inconsistencies, related to the order and age at which the concepts of death are integrated into a child's theoretical framework, it would be useful to explore these ideas with a wide age range of children (e.g., 4 to 11 year olds). Further clarification around the impact of children's developing cognitive abilities is also warranted. This will be systematically addressed without the use of Piagetian tasks, and with homogeneity of variances in IQ scores across the sample, therefore representing a typical population of children.

Questions also remain unanswered around the impact of other factors including previous experience of death, previous experience of serious illness, religious beliefs and SES. There appears to be a gap in the literature exploring the impact of these variables on the development of children's understanding of death in one entire study. There is still considerable debate around the order of subcomponent acquisition, whether this is a linear process, or children oscillate between and through different stages of understanding as their cognitive skills and knowledge develops. Alternative theories offer greater emphasis on the role of experience, and socio-cultural factors rather than viewing the development of children's understanding of death through a series of systematic stages (Nelson, 1986). Consequently, difficulties have arisen with conceptualising children's death understanding within a stage framework, and in explaining how the transition from one stage to another occurs. In conclusion, it is a combination of age, cognitive development, direct and indirect experience, and the socio-cultural context of their lives, that contributes to children's understanding of health, illness and death (Eiser, 1989).

1.11 The Current Study

The aim of the current study was to explore the impact of age, cognitive ability, previous experiences of death and/or serious illness, religious beliefs, SES and parents' education on the development of children's understanding of death. It also appears from the literature that death understanding is most strongly influenced by children's developing cognitive competency (Slaughter, 2005). Consequently, assessment of cognitive ability using the Wechsler cognitive assessments rather than Piagetian cognitive tasks in the current study will be more robust. The Wechsler Pre-School & Primary Scale of Intelligence Third UK Edition (WPPSI-III; Wechsler, 2003), for 4-5 year olds, and the Wechsler Abbreviated Scale of Intelligence Second UK Edition (WASI-II; Wechsler, 2011) for 6-11 year olds, will be administered.

Requesting SES, asking specific questions around religion, and information about previous experiences of death and/or serious illness from parents, will enable some of the important factors that may contribute to children's ideas about death to be explored. Furthermore, an improvement on previous sample sizes has been achieved, given that 92 school-aged children participated in the current study. The rationale for selecting the 4-11 year old age range, and dividing participants into four groups was that considerable differences exist in the cognitive ability of children at various developmental stages. By comparing groups of children in this way, it was anticipated that a greater understanding of children's knowledge around death in relation to their age (e.g. younger vs. older children) will be revealed. Furthermore, it was considered important to explore British children's ideas and thoughts around death, particularly given the now culturally diverse make-up of the United Kingdom. Over the past 12 years, there has been limited published research specifically for

children living in the UK, and therefore the impact of cultural and religious differences have largely been ignored.

The current study attempted to address the gaps in the literature by answering the following questions:

1. How does death understanding develop in 4-11 year-old children in relation to the acquisition of the five key subcomponents of death (irreversibility, inevitability, applicability, cessation, causality)?
2. To what extent does age and cognitive ability impact on the development of a mature concept of death as a biological event?
3. What is the possible influence of other factors such as previous experience of death and/or serious illness, religious beliefs and family SES, on the development of children's understanding of death?

The following hypotheses were tested:

1 Younger children will have a less sophisticated understanding of death as a biological event than older children.

2 In line with previous research (Slaughter & Lyons, 2003; Hunter & Smith, 2008), cognitive ability as measured by Intelligence Quotient (IQ) was expected to be positively associated with a mature concept of death as a biological event.

3 In line with previous research (Lau et al., 1989), children from a high-SES (e.g., education, occupation) were expected to have a more developed understanding of death than those from a low-SES.

4 In terms of the sequence of subcomponent acquisition irreversibility would be understood first and causality last. Applicability, cessation and

inevitability were expected to be understood after irreversibility and before causality.

5 Children who have previously experienced the death of a person in their immediate or extended family were expected to have a more mature concept of death than those who have not.

6 Children who have experience of a serious illness, either themselves or a person in the immediate or extended family will have a more sophisticated concept of death than those without this experience.

7 Experiences of religion/religious beliefs were expected to have an impact on children's understanding of death.

Chapter 2: Method

2.1 Design

This cross-sectional study is a mixed-method design, with between and within group variables, across four non-equivalent comparison groups of participants. The dependent variable was children's understanding of death with five levels: irreversibility, inevitability, applicability, cessation and causality, as measured by the death interview (Slaughter & Griffiths, 2007). The main independent variables in this study were age across four groups (4-5yrs, 6-7yrs, 8-9yrs, 10-11yrs), and cognitive ability as measured by the WASI-II (Wechsler, 2011) for 6-11 year olds, and the WPPSI-III (Wechsler, 2003) short-form, for 4-5 year olds.

Other key experiential influences on the development of children's understanding of death examined in this study were previous experience of death in the family, serious illness either of themselves or in the family, religion/religious beliefs, and family variables including SES and parents' education. This is therefore a 4 (age groups) X 5 (understanding of death based on five subcomponents) two-way mixed design, with cognitive ability as a further independent variable in addition to those previously discussed.

2.2 Participants

A power table (Clark-Carter, 2009) was consulted in the planning stages of this study to determine the number of participants that should be recruited . With four conditions based on age requiring a large effect size ($\eta^2 = 0.138$), and power of at least .80 as recommended, a minimum of 18 participants should be recruited for each age group, totalling 72 participants across the entire study. The large effect size

was based on Panagiotaki et al's (2014) study where effects sizes of up to .91 were detected. The larger sample size relative to other studies was also predicted to produce greater power, therefore reducing the risk of a Type II error (Clark-Carter, 2009). Retrospective effect sizes were calculated for recently published data on children's death understanding that was not available at the planning stage. There was between a medium and large effect (d = .72) on children's overall death understanding between two groups of children aged 4-5 and 6-7 (Panagiotaki et al., 2014). This is further justification to aim for a large effect size in the current study.

Overall, a total of 92 children participated in this study. They were allocated to four age groups: 19 children (6 boys and 13 girls) in the 4-5 year-old group (M = 5.35 years, SD = 5.00 months), 26 children (13 boys and 13 girls) in the 6-7 year-old group (M = 7.07 years, SD = 7.68 months), 26 children (8 boys and 18 girls) in the 8-9 year-old group (M = 8.91 years, SD = 9.01 months), and 21 children (14 boys and 7 girls) in the 10-11 year-old group (M = 10.67 years, SD = 5.67 months). Table 1 presents the demographic characteristics of the participants according to gender, age, SES, parental income, parental education, and ethnicity. The highest proportion of children were from White British (83%), professional (74%) families with parents educated to degree level and/or above (64%), with a household income of up to £30,000 per annum (38%).

Table 1

Participant demographic information

	N	%
Participants	92	100
Gender		
Male	41	45
Female	51	55
Age Groups		
4-5yrs	19	21
6-7yrs	26	28
8-9yrs	26	28
10-11yrs	21	23
Socioeconomic Status		
Professional	64	74
Intermediate	7	8
Routine & manual	14	16
Unemployed	2	2
Parental income		
Over £70K	19	26
£50K - £70K	14	19
£30K - £50K	12	17
Up to £30K	28	38
Parent education		
Degree & above	59	64
A Levels	23	25
GCSE's	8	9
No qualifications	2	2
Ethnicity		
White British	71	83
Asian or Asian British	7	8
Black or Black British	1	1
Mixed	3	4
Other	3	4

The recruitment process represented an opportunity sample, and was dependent on the willingness of headteachers and children's parents' as gatekeepers to give their informed consent. Overall, nine primary schools in East Anglia were contacted and of those, four agreed to take part; three state schools and one independent school. Only children with a good command of the English language were included in the study due to the level of language required to understand the instructions for the cognitive assessment.

2.3 Measures

2.3.1The Death Interview (Slaughter & Griffiths, 2007)

This is a short semi-structured interview widely used with children between the ages of 4 and 10 to assess their understanding of death as a biological event (Appendix A). Seven questions assessed children's understanding of the five subcomponents of death: irreversibility, inevitability, applicability, cessation and causality. A mature concept of death was considered to be the acquisition of all five of these concepts. The only psychometric data published is a test-retest reliability of $r = .61$ in a sample of 30 preschool children tested over a 2-week period (Slaughter & Lyons, 2003). This indicates instability and variability in what the interview is purporting to measure, and does not consistently measure the constructs related to death understanding. Kline (2000) recommends that 100 participants are tested three months after the first occasion, and a minimum of $r = .80$ would constitute good reliability. The death interview has consistently elicited young children's understanding of death in previous studies (Slaughter & Lyons, 2003; Slaughter & Griffiths, 2007; Panagiotaki et al., 2014), with research published in peer-reviewed journals (e.g. British Journal of Developmental Psychology, Cognitive Psychology,

Clinical Child Psychology & Psychiatry), and was appropriate for quantitative statistical analysis.

2.3.2 Wechsler Abbreviated Sale of Intelligence-II (WASI-II)

Cognitive ability in 6-11year olds was assessed with a standardised measure of intellectual functioning routinely used in clinical and educational settings, the WASI-II (Wechsler, 2011). It provided scores that estimated intellectual functioning in two areas, i.e. verbal comprehension and perceptual reasoning, for individuals aged 6 to 90 years old. The four subtests administered were Block Design (BD), Vocabulary (VC), Matrix Reasoning (MR), and Similarities (SI). BD is a test of nonverbal intelligence and reasoning, whilst VC assesses the retrieval of verbal knowledge, receptive and expressive language; MR is a test of spatial ability and perceptual organisation, whilst SI assesses verbal concept formation and reasoning. With this assessment, four subtest scores were obtained, and a Full Scale IQ (FSIQ) derived from it. The internal consistency of the four subtest FSIQ (FSIQ-4) for children aged 6-11 years old, ranged between .89 to .97 (Wechsler, 2011), and correlated with the Wechsler Intelligence Scale for Children-IV (WISC-IV) and Wechsler Pre-school & Primary Scale of Intelligence-III (WPPSI-III). The test-retest reliability correlation for the FSIQ-4 was .93. This adequate reliability suggested that the WASI-II subtests and scores were relatively free from measurement error. There is also a correlation of .87 with the Wechsler Intelligence Scale for Children-III (WISC-III) for concurrent validity.

2.3.3 Wechsler Pre-school & Primary Scale of Intelligence-III (WPPSI-III)

This measures cognitive ability in young children aged 4 years to 7 years 3 months in its short-form version, and was administered to the 4-5 year old children in this study (Wechsler, 2003). The four subtest short-form combination of the

WPPSI-III used was Block Design (BD), Vocabulary (VC), Symbol Search (SS), and Word Reasoning (WR). BD and VC were designed to measure identical constructs as in the WASI-II (Wechsler, 2011). SS is a test of processing speed, whilst WR assessed verbal comprehension and reasoning. As with the WASI-II, four subtest scores were obtained with maximum raw scores of 40 for BD, 43 for VC, 50 for SS, and 28 for WR.

This combination had a test-retest reliability of .93, and concurrent validity of .95 correlated with the full scale WPPSI-III (Sattler & Dumont, 2004), and with WISC-IV (no further data available). Short-form versions of the WPPSI-III are widely used in clinical and research domains to obtain an estimated Full Scale (IQ), with an administration time of only 30 minutes, the demands of completing the 10 core subtests significantly reduced. The more subtests used in the short form, the higher the reliability and validity of the estimated IQ (Sattler & Dumont, 2004), the rationale for using a four rather than two or three subtest combination.

2.3.4 Parent questionnaire

This questionnaire (Appendix B) was designed to collect information considered in the literature to have an impact on children's death understanding: previous experience of death and/or serious illness in the immediate or extended family, religion, and SES. Other demographic variables (e.g., children's gender, ethnicity) were also collected, and questions including, "What particular beliefs do you hold around death?" provided additional qualitative data.

2.4 Procedure

A total of eight children were recruited for a pilot study prior to beginning the research, two children from each age group. The aim was to provide more clarity

around the potential emotional processes involved in children completing the death interview (Slaughter & Griffiths, 2007), and the average administration time for the WPPSI-III (Wechsler, 2003) and WASI-II (Wechsler, 2011). No issues were identified with the procedure, and as a result the data collected from these participants included in the final analysis. The data collection process started in June 2013 and finished in January 2014. The administration of this study was planned in such a way as to minimise the potential burden on the school team. The researcher worked collaboratively with all staff involved to ensure the least amount of disruption to the school's daily schedule. It was anticipated that the headteacher would consider the study to fall within the range of usual curriculum or other school activities (British Psychological Society, BPS; 2009).

Headteachers were contacted by letter (Appendix C) via email, briefly describing the purpose of the study and the school's potential involvement. For those headteachers who expressed an interest, meetings were arranged to discuss the logistics of managing the recruitment and data collection phases of the study (Appendix D). Copies of the research pack and assessment measures were reviewed to facilitate the research process being as transparent as possible. The research packs consisted of age-appropriate information, using visual communication to improve accessibility across the age groups. However, it was acknowledged that younger children were likely to require the support of their parent/s to read through both the child information sheet and assent form. Each pack contained one participant information sheet (Appendix E), two participant assent forms (Appendix F), parent information sheet (Appendix G), two parent consent forms (Appendix H), and parent questionnaire. It was agreed that the location of assessments would be somewhere quiet, ideally as close to the child's classroom as possible, and for younger children,

within sight of a familiar member of staff. The special needs office/classroom was used in three of the schools, and a quiet room next to the headteachers room in the fourth school. In total, 1145 research packs were delivered to the four primary schools, and given to all children by the teachers. Parents interested in taking part in the study were asked to complete the consent form, parent questionnaire, and to ask their child to complete the assent form. These forms were then returned to the school reception within one week. Completed consent forms were collected by the school administration team and handed over to the researcher. Children with parental consent were then added to an Excel spread sheet, identified only by a previously allocated participant identification number on the consent form. This number corresponded with all completed measures, and ensured the participants' anonymity at all times. The signed consent forms were stored in a separate filing cabinet to that of the completed measures. Only those children with informed written consent, signed off by their parent, were then allocated a date and time slot for assessment.

In advance, the administration person at each school organised a schedule outlining the date/time for each child's assessment. It was also confirmed that these children were not currently experiencing any emotional, behavioural or family difficulties that by participating in the study would impact on their wellbeing. The researcher set up the cognitive assessment on a child-sized table in the allocated room, and then collected each participant from their classroom (the teacher had prior notification of this taking place). Participants were then informed of the aim of the study (Appendix I), that there were no right or wrong answers, and reminded that they could stop at any time and return to their classroom. To support younger children with this process, they were given a "STOP" card (Appendix J) to show the

researcher if and when they wished to stop the interview. On meeting with each child, establishing rapport was key to the child feeling at ease with the researcher, and to facilitate a more positive experience. Some discussion around the child's world (e.g. favourite subject, friendships at school, favourite teachers) helped to "break the ice" and resulted in a more relaxed assessment.

The order in which the measures were completed, introduced a degree of bias due to the possibility of difficult emotions being elicited when answering questions on the death interview. Being in an emotionally aroused state may unduly affect participants' concentration and attention, and subsequent performance on the cognitive tests. To avoid this potential bias, the order of administration of the measures was randomised. Each interview lasted approximately 30-40 minutes. With permission granted by parents on the consent form, a voice recorder was used to record children's responses to questions on the death interview. At the end of each session, children were de-briefed (Appendix K) and offered a certificate of participation (Appendix L) and a sticker (e.g., moshi-monster, mr men, little miss) as a token of the researcher's gratitude. The child was then promptly returned to class by the researcher.

This study was assessed as having minimal risk, indicating that most children, as in previous research (Slaughter & Griffiths, 2007; Slaughter & Lyons, 2003), enjoyed contributing their experience and knowledge base to helping other children. However, it was acknowledged that for some children, talking about death may raise some difficult issues, particularly if they had experienced a recent bereavement. It was arranged with the headteacher that the school counsellor or pastoral carer would be made available to the researcher on the day of interviews.

When the de-brief information was read out and participants were asked if there was anything upsetting or difficult to understand, two children said that they felt upset because of answering the questions about death. Both had experienced a bereavement in their extended family; one death a few months prior to the interview taking place, and the other five years previously. Another child reported feeling upset before starting the assessment, which was discontinued immediately. This particular child had experienced two deaths in the extended family in the last two years, and a father in remission from cancer. All three children were taken to see the pastoral carer/school counsellor who offered them a session that day, their parents were notified, and an age-appropriate leaflet from the Childhood Bereavement UK charity was offered. Unfortunately, no local bereavement services were available in the towns and surrounding area to signpost children and families to.

A few children in this study reported that they had not spoken to another adult about their thoughts and feelings relating to death, and taking part in this study offered them the opportunity to do so. Some children were also interested in knowing about the researcher's experience of death, thoughts in the existence of an afterlife, and reasons for the researcher engaging in this topic. The schools reported that they were happy to be involved in the research process, and there was no noticeable disruption to classrooms. Many teachers were positively interested in the ideas being explored and reported looking forward to hearing the feedback and recommendations.

2.5 Coding

On the death interview (Slaughter & Griffiths, 2007), participants scored 0, 1 or 2 for each of the five subcomponents. The range in scores reflected how correct

and complete the responses were, indicating how developed children's understanding of death was. For example, on question 3, "Tell me some things that don't die", if only living things were mentioned (e.g., my mum, my dad, birds), participants would score 0. If a mixture of living and non-living things were mentioned (e.g., humans, pencil case, grass, recorder), participants would score 1, and if only non-living things were mentioned (e.g., statues, wood, cars, schools), participants would score 2. The overall death concept score ranged from 0-10, with a maximum score of 2 for each subcomponent (Appendix A).

Once all assessments were completed and scored, a second independent judge (trainee clinical psychologist colleague) scored half of the interviews ($N = 46$). The overall agreement was 96% and the agreement rates for each of the five subcomponents were as follows: 100% for inevitability, 98% for applicability, 100% for irreversibility, 100% for cessation, and 85% for causality. After discussions with the second rater, differences in coding for causality were resolved and the agreement rate improved to 98%.

2.6 Choice of statistical tests

Statistical test choice was made on the basis of most appropriately addressing the hypotheses in question. Given that this was a mixed methods design comparing several means, it was important to make the correct choice. At a minimum, there would be comparisons between two groups (e.g., beliefs in the afterlife versus no belief in the afterlife), on children's understanding of death. At most there would be comparisons between four groups with five dependent variables. As a result, ANOVA was considered the most robust way of attempting to answer the questions, without unduly inflating the Type I error rate, as is possible with carrying out several

t-tests to compare all combinations of groups (Field, 2009). Furthermore, a repeated multivariate ANOVA (MANOVA) test was selected to assess the impact of multiple independent variables on the five subcomponents of death and control the probability of Type I error (Meltzoff, 1998). This test did not make the assumption of sphericity either, which was important to note should the data violate sphericity by the variances not being equal. Finally, a one-tailed Pearson's Product Moment correlation coefficient was used to test the relationship between children's IQ scores and mean scores on the death interview. Any references to effect sizes in this study were based on Cohen's *d* (Cohen, 1988) calculation for partial eta squared. Post-hoc pairwise comparisons were conducted using the Gabriel test, selected on the basis that the sample sizes in this study were slightly different, and it offered adequate control over a Type II error.

2.7 Ethical issues

Ethical approval for this study was agreed by the Faculty of Medicine and Health Sciences Research Ethics Committee (Appendix M, Appendix N & Appendix O) at the University of East Anglia. The Code of Ethics and Conduct published by the BPS (2009) was referred to in relation to the ethical considerations, and informed the decision making process around how to conduct this study. In addition to parents, headteachers, class teachers at schools, and local authority research governance committees also acted as gatekeepers. A member of the county council research governance panel confirmed that ethical approval was not required for this study. This organisation was originally established to monitor research in social care, and the remit for research in schools was only at the discussion stage. The participant information sheets clearly described the study and what was to be

expected of the child, reiterating that participation was voluntary, and that the child could withdraw at any time without giving a reason. The informed consent of children and young people to participate in research should be actively and explicitly sought (Barnado's, 2010). More specifically, children aged 6-11 years were invited to assent to participate in this study.

The data collected will be stored securely and separate from any identifying information in a locked archive room at the University of East Anglia (UEA) for a minimum of five years after the project has been completed. Only the researcher and supervisors involved in this study will have access to the stored information. This process ensures compliance with the Data Protection Act (1998), which states that participants must be informed of what information will be held about them and who will have access to it. All data stored electronically is kept on a password protected computer at UEA given that data collection for this study is complete. During the research process, the researcher had access to this information on a personal computer, which also adhered to the same security restrictions. Anonymity will always be maintained, and any future analyses will only ever be in relation to group data, as with analyses in this study. Therefore it will not be possible to identify any children individually in this or any future research papers. Furthermore, personal data will be destroyed 6-12 months after the study has ended and raw data five years later.

It is anticipated that this research will be published in a good quality peer-reviewed journal. The initial abstract was selected to be presented as a poster (Appendix P) at the Postgraduate Research Conference, University of East Anglia in March 2014. Then later on in the year, in September 2014, an updated poster (Appendix Q), was presented at the ClinPsyD Annual Research Conference at UEA.

Individual arrangements have been made with participating schools, for example to present the overall findings from this study in the school newsletter, and/or at a staff meeting. A new protocol on how to support children through the grieving process, and facilitate their understanding of death will also be provided to the four schools who participated in this study. This will incorporate guidelines around what children understand about death at different ages, cognitive abilities, and how religious beliefs, previous experience of death and/or illness and SES may impact on this knowledge.

Chapter 3: Results

3.1 Exploration of the Data

The distribution of scores on the death interview were assessed for normality. The *p*-value for the test of equality of error variances was Levene's F Statistic of .29 (not significant), indicating that the assumption of homogeneity of variance was accepted. However, the Kolmogorov-Smirnov test of normality indicated that the scores on the death interview, $D\ (92) = .21$, $p < .001$, were highly significantly non-normal. The extent to which the scores were not normally distributed were then analysed further by age group. This revealed that the 4-5 age group, $D\ (19) = .21$, $p < .05$, 8-9 age group, $D\ (26) = .34$, $p < .001$, and 10-11 age group, $D\ (21) = .25$, $p < .001$, were significantly non-normal. Whereas, scores were normally distributed in the 6-7 age group, $D\ (26) = .17$, $p = .06$.

To assess the significance of the deviation from normal distribution, skewness scores were converted to *z*-scores by dividing this score by their standard error. For the 4-5 age group, the *z*-score of skewness was .15, for the 8-9 age group the *z*-score of skewness was -2.58, and for the 10-11 age group the *z*-score of skewness was -1.55. Therefore the only *z*-score greater than 1.96 (to reach significance at $p < .05$) was for the 8-9 age group. This indicated a significant negative skew and build up of high scores evident in Figure 3, where 12 of the 26 participants scored 9 out of 10 on the death interview. This was to be expected given that children were hypothesised to develop their understanding of death as they age. However, five of the participants in the 8-9 age group scored the highest possible score and reached ceiling, which was also true for 3 participants in the 10-11 age group and 3 participants in the 6-7 age group.

Figure 1 Distribution of scores on the death interview for 4-5 year olds.

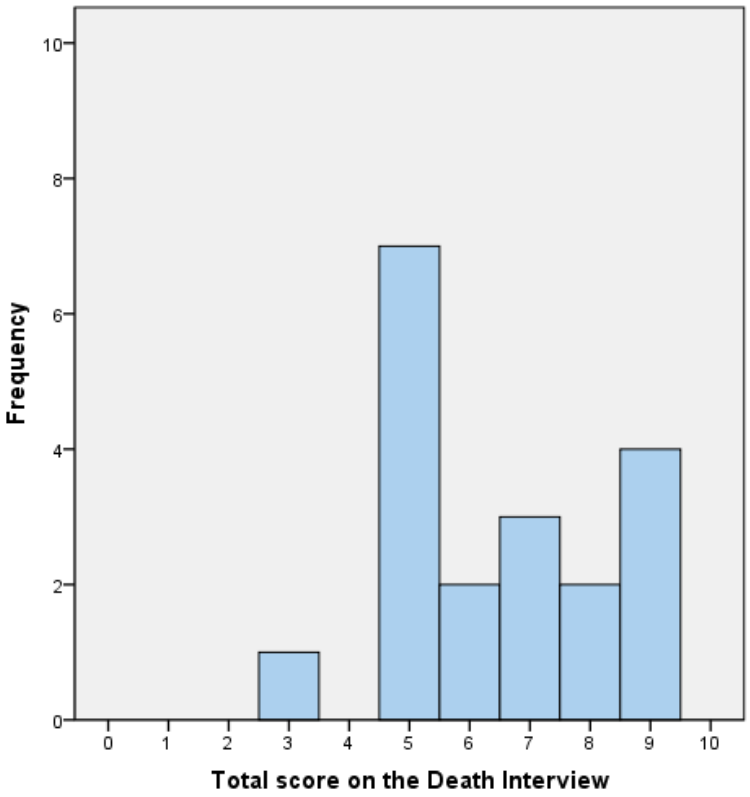


Figure 2 Distribution of scores on the death interview for 6-7 year olds.

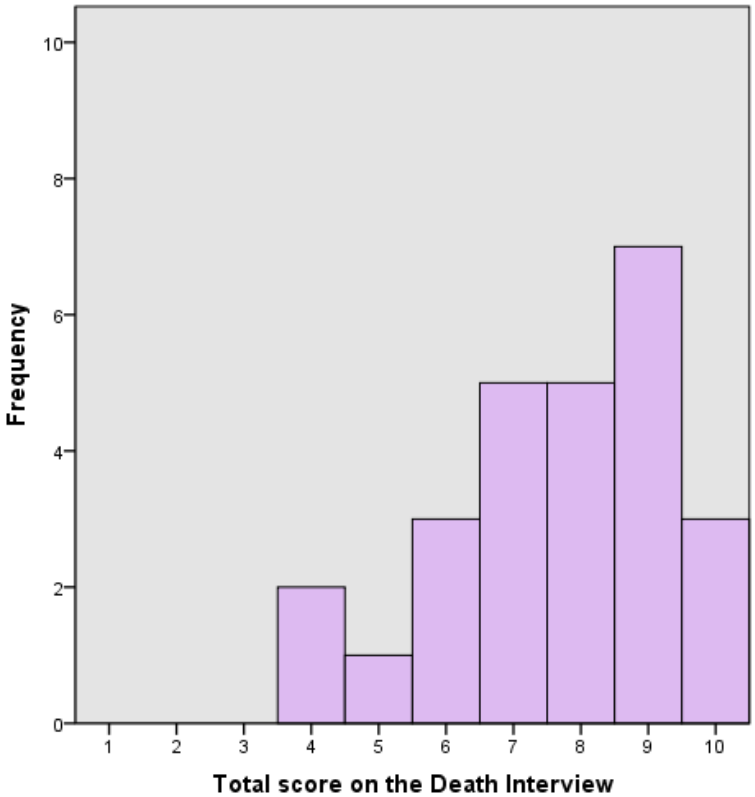


Figure 3 Distribution of scores on the death interview for 8-9 year olds.

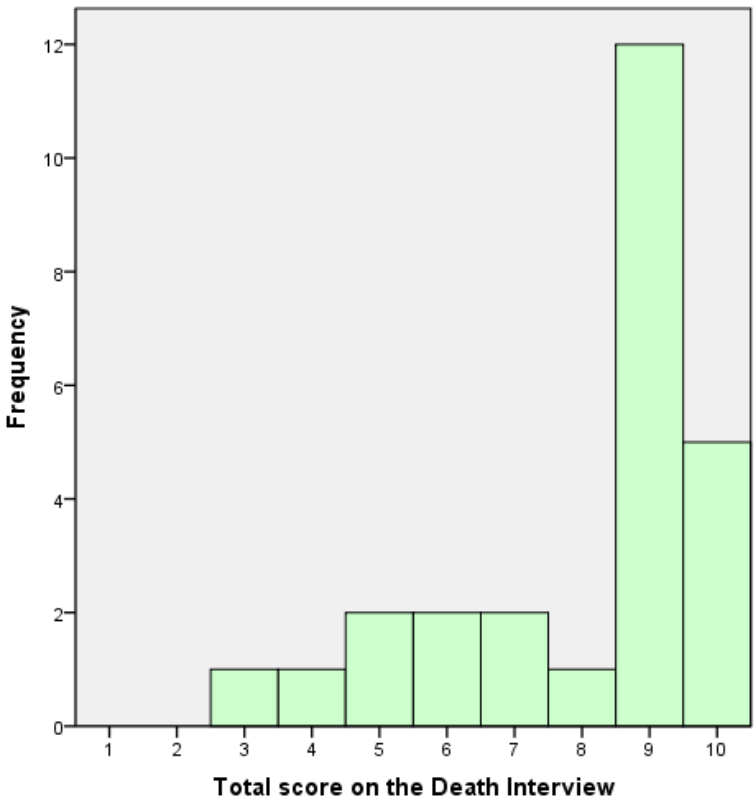
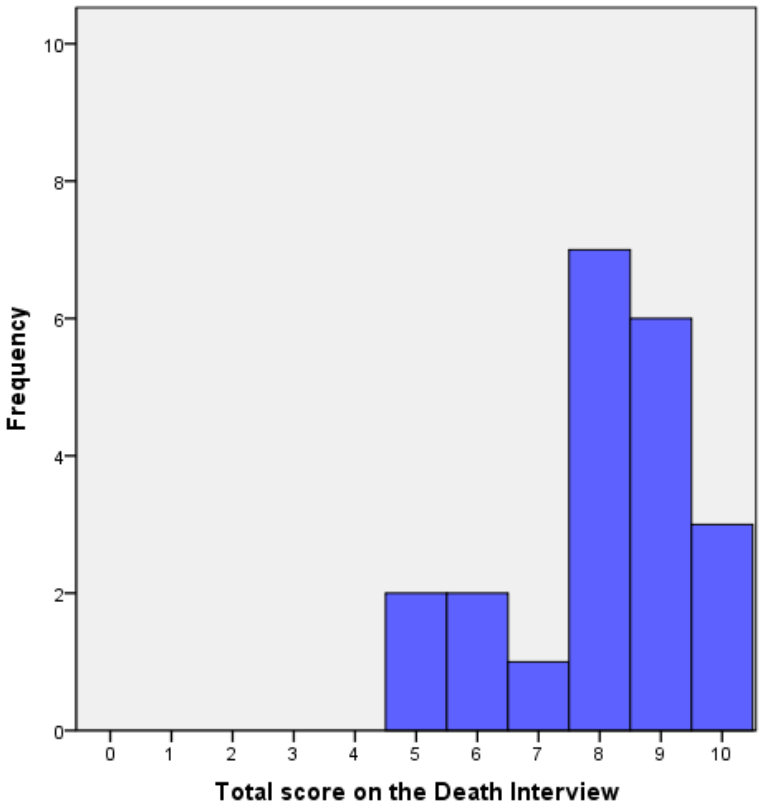


Figure 4 Distribution of scores on the death interview for 10-11 year olds.



On further exploration, a series of error graphs showing total death interview scores per age group revealed five outliers; one in the 8-9 age group, and four in the 10-11 age group. These outliers were removed from the entire data set to assess the impact these scores were having on the non-normal distribution. The Kolmogorov-Smirnov test of normality only changed for the 10-11 age group from D (92) = .25, $p < .01$ to D (87) = .24, $p < .01$, and not for any of the other age groups. This still indicated that the scores were significantly non-normal across the four age groups apart from the 6-7 age group, D (87) = .17, $p = .06$. As a result, the previously identified outliers were not removed from the data set on further statistical analyses. Furthermore, no attempt was made at transforming the data given that the p-value for the test of equality of error variances was not significant, F (3,88) = 1.27, $p = .29$. Therefore, conditions for parametric tests were met given that the variances for scores on the death interview could be considered equal, the assumption of homogeneity of variance accepted and the data categorised as ratio.

For the IQ scores, the p-value for the test of equality of error variances was Levene's F Statistic of .33 (not significant), and indicated that the assumption of homogeneity of variance can be accepted, F (3,88) = 1.16, $p = .33$. Furthermore, the Kolmogorov-Smirnov test of normality indicated that the IQ scores were not significant, D (92) = .05, $p = .20$, and therefore were normally distributed. This was also evident from viewing the histogram, which displayed a normal bell curve with only slight visible signs of skewness to the right. On exploring the data further, one outlier from the 4-5 age group was identified with an IQ score of 137. This is categorised as very superior on the WPPSI-III, and is within the top 2.2% of a normal IQ distribution curve. On closer review of the extreme values for each of the other three age groups in relation to IQ, the highest score in the 6-7 age group was

141, in the 8-9 age group it was 133, and in the 10-11 age group the highest score was 135. Given the range of high scores across the age groups, a score of 137 was considered to lie within the normal distribution of IQ scores in this study. As a result the outlier was not removed from any further analysis.

3.2 Descriptive Statistics

Table 2 presents characteristics of participants according to the factors being explored in this study. Overall, 89% of children performed in the average to high average IQ range, defined according to the widely used psychometric conversion table. In this sample, there was an almost even divide between those who reported belonging to a religion (49%) and those who did not (51%). The majority of children reported beliefs in an afterlife (59%), previous experience of death (60%), and no previous experience of serious illness (70%).

3.3 Preliminary Exploratory Analyses

Preliminary correlation analyses and independent *t*-tests at a two-tailed level assessed the impact of gender, ethnicity, and order of test administration on children's understanding of death. There was not a significant difference in mean scores on the death interview between boys ($M = 7.73$, $SD = 1.67$), and girls ($M = 7.51$, $SD = 2.00$); $t\ (90) = .57$, $p = .57$. Gender was therefore excluded from further analyses. Limited cultural diversity existed in this sample (83% White British) and therefore ethnicity was not included. There was not a significant difference relating to order of test administration (death interview or cognitive assessment first), and overall death interview scores, $t\ (90) = -1.27$, $p = .21$.

Table 2

Participant information and mean (M) death interview scores with standard deviations (SD)

	N	%	*M (SD)*
	92	100	Score
Gender			
Male	41	45	7.73 (1.67)
Female	51	55	7.51 (2.00)
Age Groups			
4-5yrs	19	21	6.47 (1.80)
6-7yrs	26	28	7.65 (1.72)
8-9yrs	26	28	8.04 (2.01)
10-11yrs	21	23	8.05 (1.50)
Socioeconomic Status			
Professional	64	74	7.97 (1.72)
Intermediate	7	8	7.43 (1.81)
Routine & manual	14	16	6.50 (2.1)
Unemployed	2	2	6.00 (1.41)
Percentiles for FSIQ			
> 75th (high average)	34	37	7.82 (1.77)
25th – 75th (average)	48	52	7.77 (1.77)
< 25th (low average)	10	11	6.10 (2.03)
Belong to a religion			
Yes	45	49	7.49 (1.77)
No	46	51	7.70 (1.95)
Belief in the afterlife			
Yes	44	59	7.73 (1.63)
No	31	41	7.87 (1.86)
Previous experience of death			
Yes	55	60	7.84 (1.81)
No	36	40	7.22 (1.88)
Previous experience of serious illness			
Yes	27	30	7.48 (1.93)
No	64	70	7.64 (1.84)

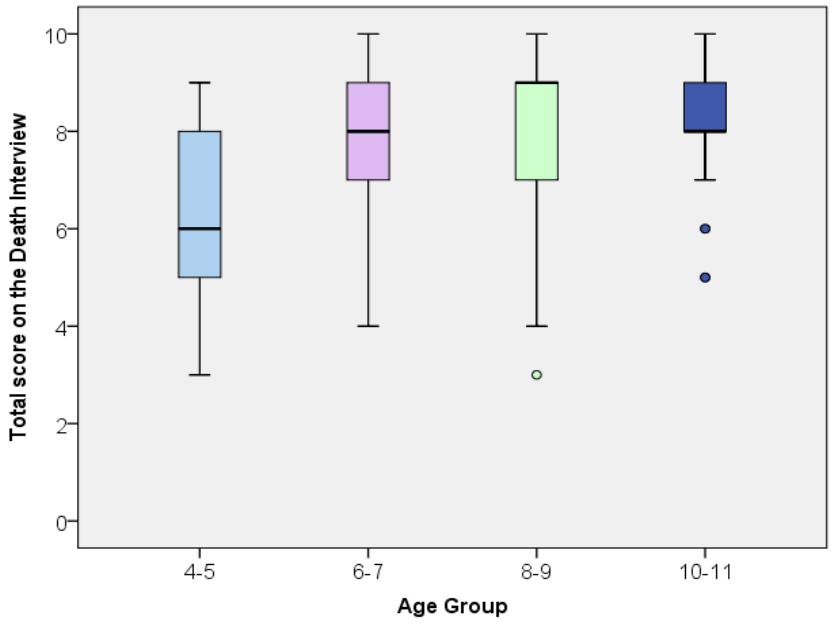
3.4 Impact of Age, Cognitive Ability and SES

3.4.1 Hypothesis 1 (H1)

It was hypothesised that younger children will have a less sophisticated understanding of death as a biological event than older children.

An analysis of variance (ANOVA) revealed a significant main effect of age on death scores, F (3,88) = 3.52, $p < .05$, partial $\eta^2 = .11$. Gabriel's pairwise comparisons were selected to explore the differences between the age groups further as this post-hoc test has greater power for use with sample sizes that are slightly different (Field, 2009). This indicated that 4-5 year-olds ($M = 6.47$, $SD = 1.81$) had significantly lower death scores than 8-9 year olds ($M = 8.04$, $SD = 2.01$), and 10-11 year-olds ($M = 8.05$, $SD = 1.50$), where $p < .05$. Figure 5 displays this information. No significant differences in death scores were revealed between 4-5 and 6-7 year olds ($M = 7.65$, $SD = 1.72$) where $p > .05$, or between 8-9 and 10-11 year-olds, where $p > .05$. Therefore H1 was supported.

Figure 5 Mean scores and standard deviations on the death interview by age group.



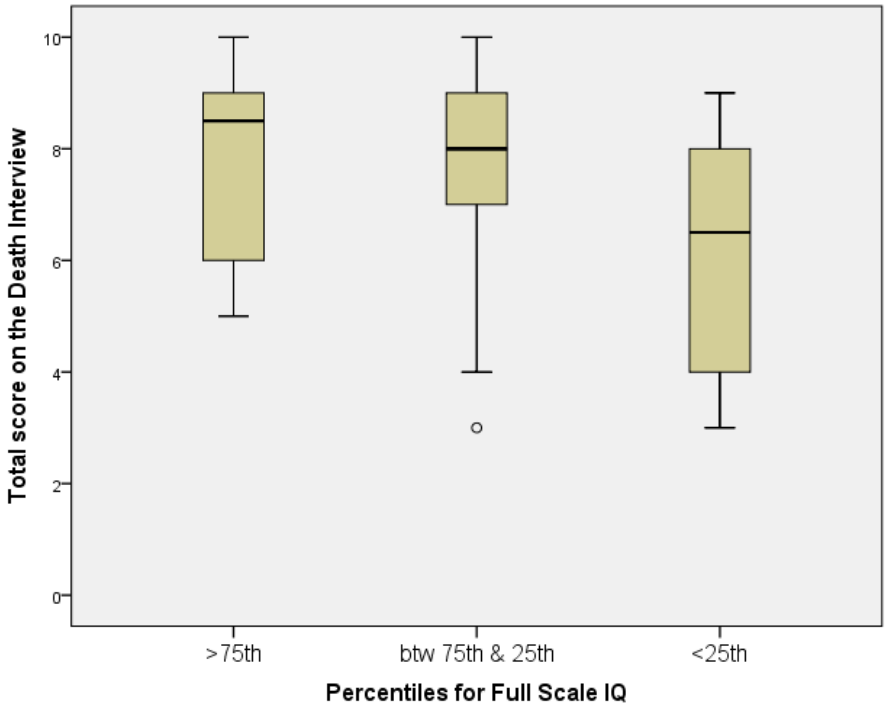
3.4.2 Hypothesis 2 (H2)

Based on previous research (Slaughter & Lyons, 2003; Hunter & Smith, 2008), it was hypothesised that cognitive ability, as measured by Intelligence Quotient (IQ), was expected to be positively associated with a mature concept of death as a biological event.

One-tailed Pearson's Product Moment correlation coefficient was used to test the relationship between children's IQ scores and mean scores on the death interview. IQ scores were significantly positively correlated with death understanding, r (90) = .20, $p < .05$. As a result, children were allocated to one of three IQ groups: > 75th percentile (N = 34), 25th to 75th percentile (N = 48), and < 25th percentile (N = 10), and further post-hoc analyses were conducted using ANOVA.

A significant main effect was revealed for IQ on children's death scores, F (2,89) = 3.98, $p < .05$, partial $\eta^2 = .08$. The post-hoc independent t-tests indicated a significant difference in death scores between the lowest 25th percentile (M = 6.10, SD = 2.03), and 25th to 75th percentile (M = 7.77, SD = 1.77), where t (2, 56) = -2.66, $p < .01$. There was also a significant difference between the lowest 25th percentile, and the upper 75th percentile (M = 7.82, SD = 1.77), where t (2, 42) = -2.63, $p < .01$. There was not a significant difference between the 25th to 75th percentile, and the upper 75th percentile, where t (2, 80) = .89, p = .89. This is represented in Figure 6. There was not a significant interaction between age group and IQ percentiles on death scores, F (5,81) = .14, p = .98, partial $\eta^2 = .01$.

Figure 6 Mean scores and standard deviations on the death interview by IQ percentiles.



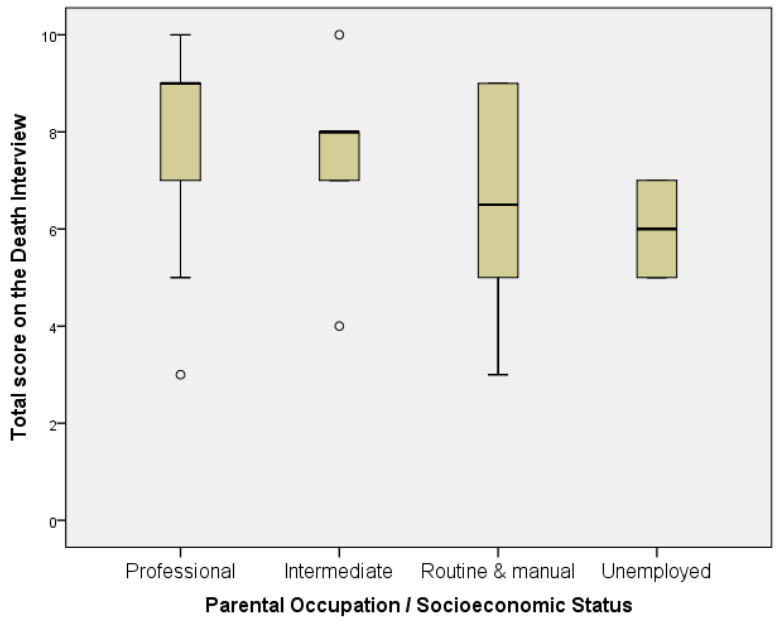
This suggested that children who performed below 25th percentile (low average IQ) on the cognitive assessments, had significantly lower death scores than those children in both the 25th to 75th percentile range (average IQ), and above the 75th percentile (high average IQ). Overall, H2 was supported.

3.4.3 Hypothesis 3 (H3)

Based on previous research (Lau et al., 1989), children from a high-SES (e.g., occupation) were expected to have a more developed understanding of death than those from a low-SES (H3).

The ANOVA revealed there was no significant main effect for SES and death scores, F (3,60) = 2.28, p = .09. Death understanding between children in the four SES groups, professional (M = 7.97, SD = 1.72), intermediate (M = 7.43, SD = 1.81), routine/manual (M = 6.50, SD = 2.07), and unemployed (M = 6.00, SD = 1.41), did not differ significantly, as represented in Figure 7. Therefore H3 cannot be supported.

Figure 7 Mean scores on the death interview by socio-economic status.



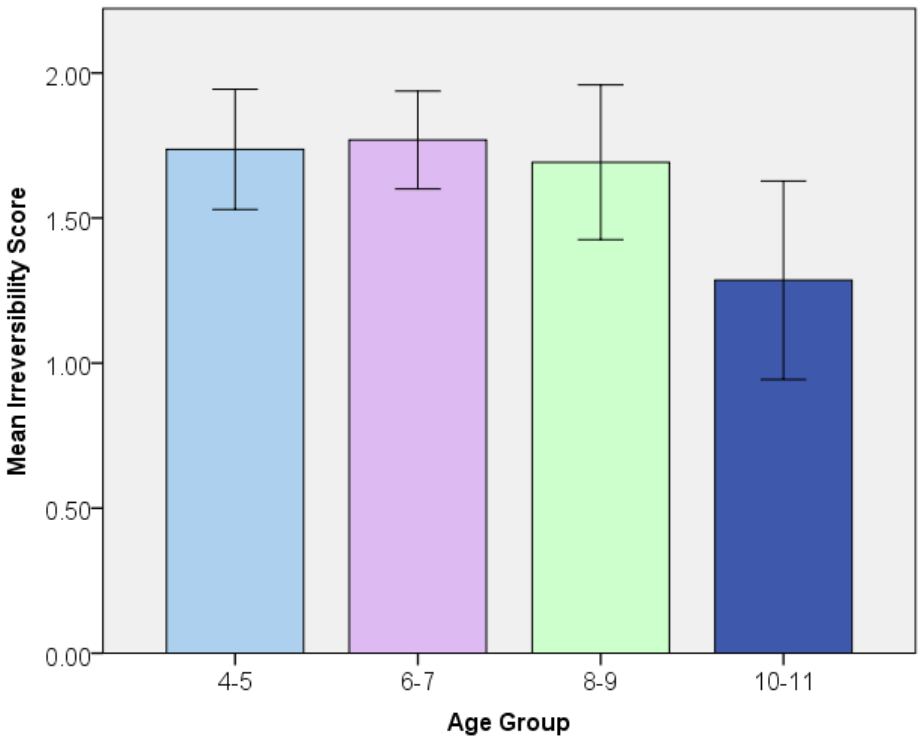
3.5 Order of Death Subcomponent Acquisition

3.5.1 Hypothesis 4 (H4)

It was hypothesised that irreversibility would be understood first and causality last. Applicability, cessation and inevitability were expected to be understood after irreversibility and before causality.

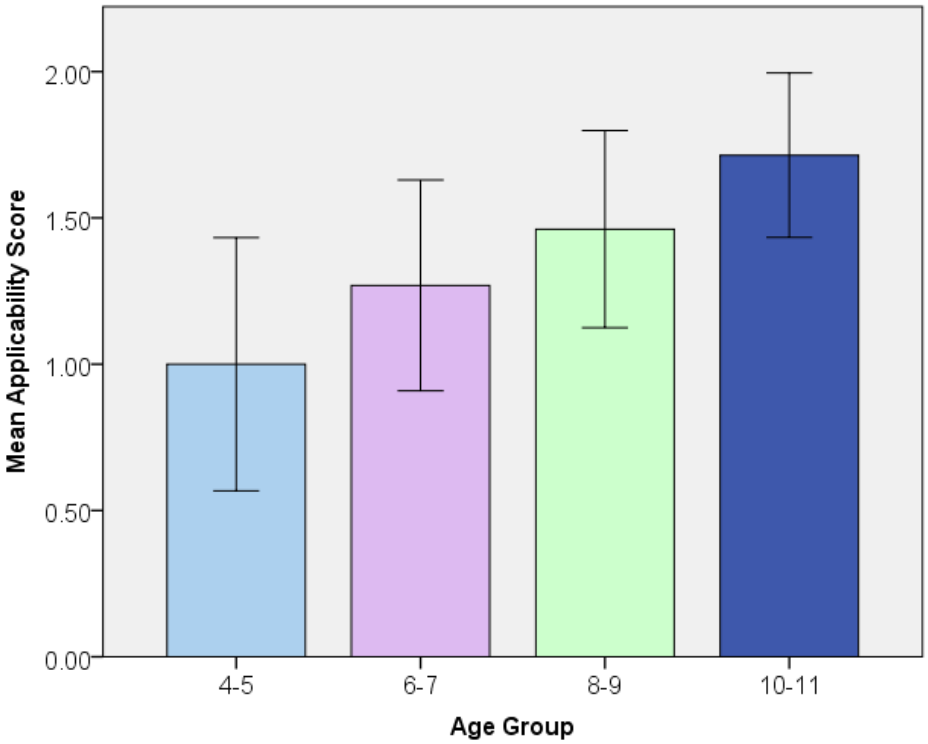
The repeated measures multivariate ANOVA (MANOVA) revealed a significant main effect of age and irreversibility F (3,88) = 3.02, $p < .05$, partial $\eta^2 = .09$. Follow-up pairwise comparisons indicated that 6-7 year olds ($M = 1.77$, $SD = .43$), and 8-9 year olds ($M = 1.69$, $SD = .68$), scored significantly higher on irreversibility than 10-11 year olds ($M = 1.29$, $SD = .78$), where $p < .05$, as displayed in Figure 8. There was not a significant difference for 4-5 year olds ($M = 1.74$, $SD = .45$).

Figure 8 Mean scores on irreversibility for each age group.



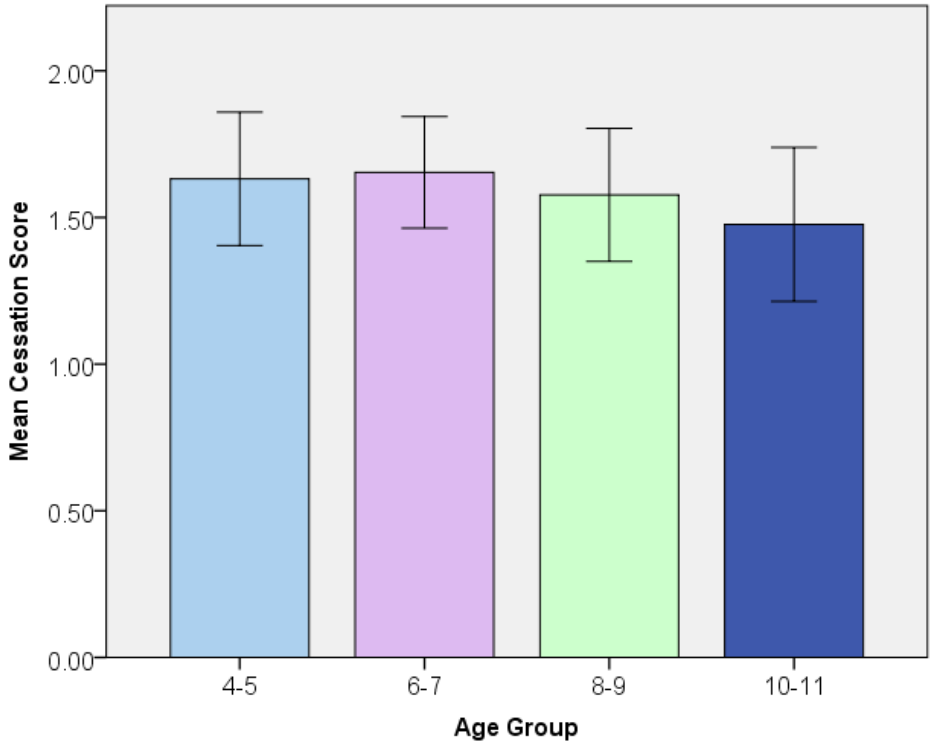
There was an equivocal finding for age and applicability given that the *p* value was close to significance, $F(3,88) = 2.56$, $p = .06$, partial $\eta^2 = .08$. The mean scores across the ages for this subcomponent were for 4-5 yrs. ($M = 1.00$, $SD = .94$), 6-7 yrs. ($M = 1.27$, $SD = .92$), 8-9 yrs. ($M = 1.46$, $SD = .86$), and 10-11 yrs. ($M = 1.71$, $SD = .64$), as displayed in Figure 9.

Figure 9 Mean scores on applicability for each age group.



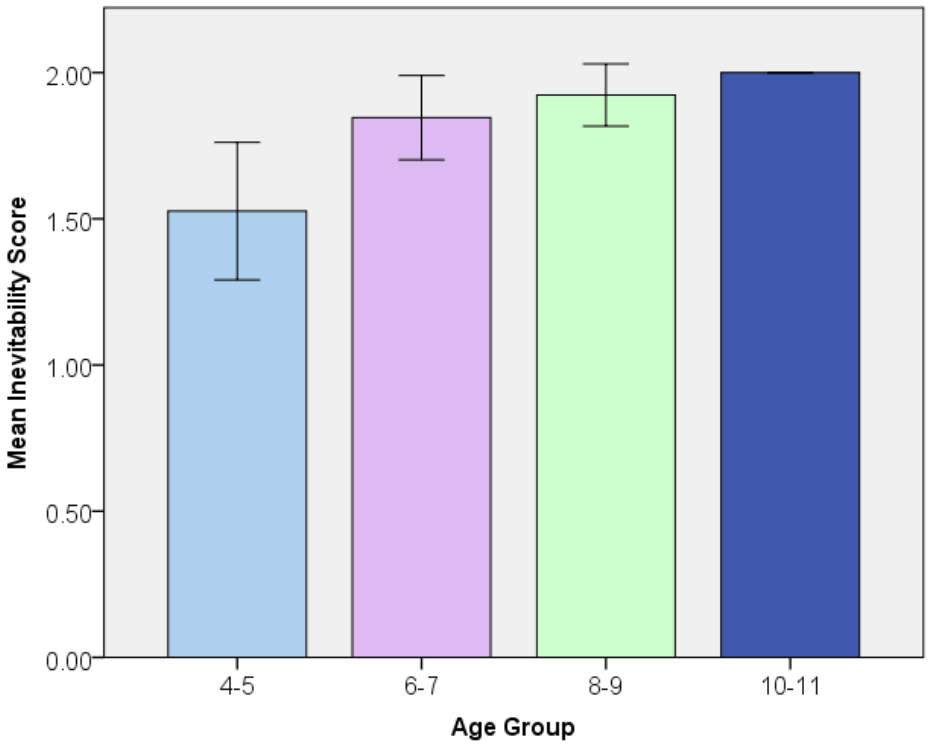
There was no significant main effect for age and cessation, F (3,88) = .47, p = .70, partial η^2 = .02, although this effect could be suggested to have reached marginal significance. The mean scores for cessation, as represented in Figure 10, were 4-5 yrs. (M = 1.63, SD = .50), 6-7 yrs. (M = 1.65, SD = .49), 8-9 yrs. (M = 1.58, SD = .58), and 10-11 yrs. (M = 1.48, SD = .60).

Figure 10 Mean scores on cessation for each age group.



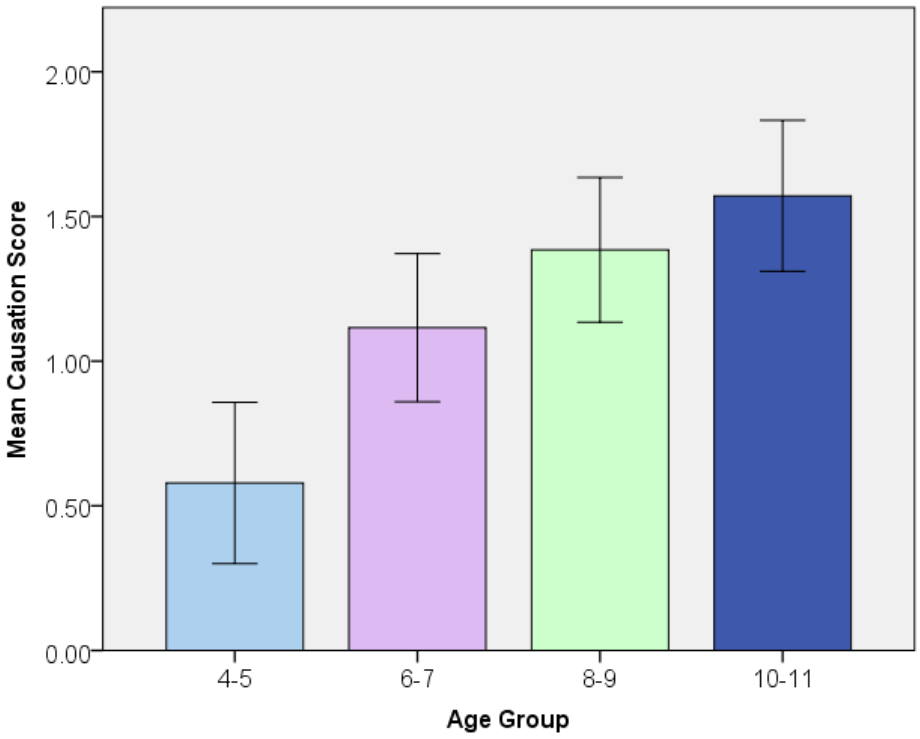
There was a significant main effect for age and inevitability F (3,88) = 7.61, $p < .001$, partial $\eta^2 = .21$. Follow-up pairwise comparisons indicated that 4-5 year olds ($M = 1.53$, $SD = .51$), scored significantly lower than all other age groups, 6-7 year olds ($M = 1.85$, $SD = .37$), where $p < .05$, 8-9 year olds ($M = 1.92$, $SD = .27$), where $p < .01$, and 10-11 year olds ($M = 2.00$, $SD = 0$), where $p < .001$, as displayed in Figure 11.

Figure 11 Mean scores on inevitability for each age group.



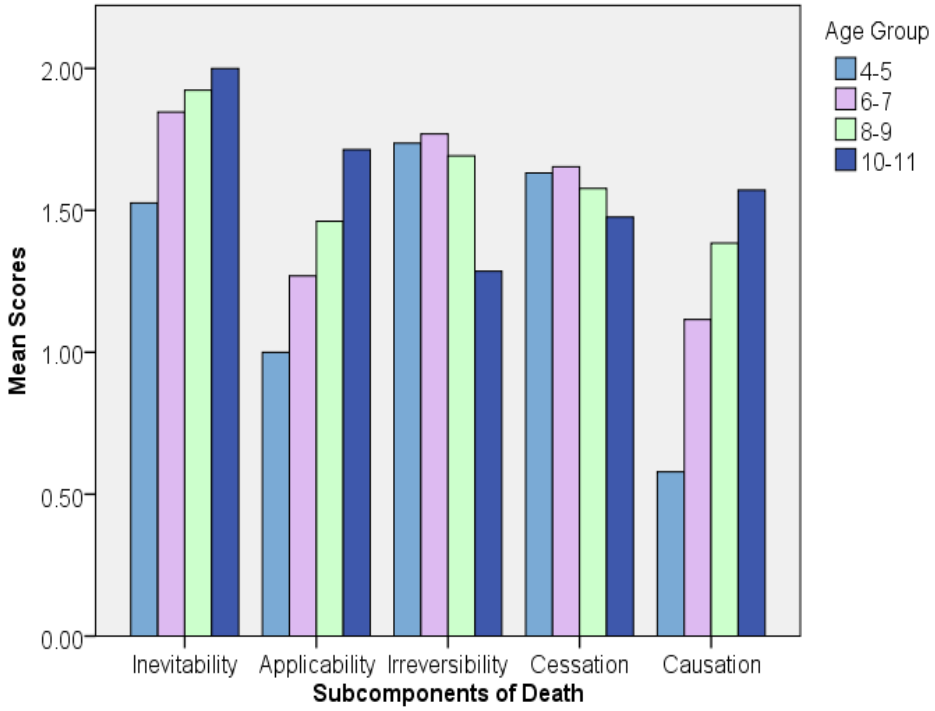
There was also a significant main effect of age and causality F (3,88) = 3.76, p <.001, partial η^2 = .25. Follow-up pairwise comparisons indicated that 4-5 year olds (M = 0.58, SD = .61), scored significantly lower than 6-7 year olds (M = 1.12, SD = .65), where p < .05, 8-9 year olds (M = 1.38, SD = .64), where p < .001, and 10-11 year olds (M = 1.57, SD = .60), where p < .001, as displayed in Figure 12.

Figure 12 Mean scores on causality for each age group.



In summary, the impact of age on the development of children's understanding of the five subcomponents of death is represented in Figure 13. Overall, the MANOVA model explained approximately 65% ($R^2 = .65$) of the variability in children's understanding of the five subcomponents of death. H4 was supported.

Figure 13 Mean scores on each of the five subcomponents of death across the ages.



3.6 Impact of Previous Experience of Death, Illness, and Religious Beliefs

The impact of these three factors were analysed together using an ANCOVA (see Table 3), with religion, previous experience of death and serious illness experience as the independent variables, and scores on the death interview as the dependent variable. Given that in previous analyses age and IQ significantly influenced scores on the death interview, it was important to include these variables as covariates in the ANCOVA. Levene's test of equality of error variances was not significant, $p = .38$, and therefore homogeneity of variances can be assumed. As to be expected, a significant main effect on children's total death score was indicated for both age, $F\ (1,81) = 9.89$, $p < .01$, partial $\eta^2 = .11$, and IQ, $F\ (1,81) = 6.39$, $p < .01$, partial $\eta^2 = .07$.

3.6.1 Hypothesis 5 (H5)

Children who have previously experienced the death of a person in their immediate or extended family were expected to have a more mature concept of death than those who have not.

The ANCOVA indicated a non-significant main effect of previous death experience on children's death scores, $F\ (1,81) = .36$, $p = .55$, partial $\eta^2 = 0$. However, with reference to the mean scores in Table 3, children with previous experience of death scored higher on the death interview ($M = 7.84$, $SD = 1.81$) than children without death experience ($M = 7.22$, $SD = 1.88$), and this approached significance, $t\ (2,89) = 1.56$, $p = .06$.

Table 3

ANCOVA with means and standard deviations (in parentheses) of death interview scores by religion, death and illness experience.

	Death Interview Score	ANCOVA F	df	Sig.	eta squared
Age Group	-	9.89	1	.01	.11
IQ	-	6.39	1	.01	.07
Religion	-	1.85	1	.18	.02
Illness	-	.30	1	.59	0
Death	-	.36	1	.55	0
Religion* Illness	-	3.50	1	.07	.04
Religion*Illness*Death	-	3.32	1	.07	.04
Belong to religion					
Yes (*N* = 45)	7.49 (1.77)				
No (*N* = 46)	7.70 (1.95)				
Opted-out (*N* = 1)					
Belief in the afterlife					
Yes (*N* = 44)	7.73 (1.63)				
No (*N* = 31)	7.87 (1.86)				
Opted-out (*N* = 17)					
Previous experience of death					
Yes (*N* = 55)	7.84 (1.81)				
No (*N* = 36)	7.22 (1.88)				
Opted-out (*N* = 1)					
Previous experience of serious illness					
Yes (*N* = 27)	7.48 (1.93)				
No (*N* = 64)	7.64 (1.84)				
Opted-out (*N* = 1)					

Note. R squared = .24 (Adjusted R Squared = .15)

3.6.2 Hypothesis 6 (H6)

Children who have experience of a serious illness, either themselves or a person in the immediate or extended family will have a more sophisticated concept of death than those without this experience.

The ANCOVA revealed a non-significant main effect for previous experience of illness on children's death scores, F (1,81) = .30, p = .59, partial $\eta^2 = 0$. This indicated that children's understanding of death was not significantly different between those with experience of illness (M = 7.48, SD = 1.93), and those without (M =7.64, SD = 1.84).

3.6.3 Hypothesis 7 (H7)

Experiences of religion/religious beliefs were expected to have an impact on children's understanding of death.

The ANCOVA indicated a non-significant main effect for experiences of religion and/or religious beliefs on children's death scores, F (1,81) = 1.85, p = .18, partial $\eta^2 = .02$. This indicated that children's understanding of death was not significantly different between those with experience of religion and/or religious beliefs (M = 7.49, SD = 1.77), and those without (M =7.70, SD = 1.95).

Overall, the ANCOVA revealed two interaction effects that approached significance between religion and illness experience, F (1,81) = 3.32, p = .07, partial $\eta^2 = .04$, and religion, illness and experience and death experience, F (1,81) = 3.50, p = .07, partial $\eta^2 = .04$. It could therefore be that these two equivocal interactions contributed individually in some way to explaining the variability in death scores. However, when the impact of each variable on total death scores was assessed using one-way ANOVA's, no significant effects were revealed for religion, F (1,89) = .28,

$p = .60$, partial $\eta^2 = 0$, previous experience of serious illness, $F(1,89) = .14$, $p = .71$, partial $\eta^2 = 0$, and previous experience of death, $F(1,89) = 2.42$, $p = .12$, partial $\eta^2 = .03$. Therefore H5, H6, and H7 were not supported. With reference to death interview scores in Table 3, non-religious children with previous experience of death but not serious illness had the highest scores on the death interview, whereas religious children with previous experience of illness but not death had the lowest scores.

By conducting a power analysis, an assessment was made as to whether the sample size in this ANCOVA was sufficient to detect any interaction effects, although a "non significant result guarantees that the power was inadequate for detecting a population effect equal to the sample effect" (O'Keefe, 2007, p. 293). The observed power ranged from .05-.45, and given it is recommended that with any statistical test there should be a power of at least .80, the power in this analysis was inadequate. On closer examination the sample sizes of the groups were considered to be sufficient to detect effects where $df = 2$, $\eta^2 = .138$ (large effect size), with a power of .80. The power tables consulted (Clark-Carter, 2009) recommended a minimum of 25 participants in each of the two groups. So given that the observed power was low, ß = .05-.45, the probability of avoiding a Type II error (1-ß) was between .95 and .65, or 95% to 65%. As a result, there was only a slight chance that the hypotheses were falsely rejected when an effect may be present. Furthermore, the effect sizes reported by partial eta squared in this ANCOVA were small and ranged from 0-.06.

3.7 Impact of Age and Religion on Types of Children's Responses

It was of further interest to explore the types of responses offered by children to questions relating to irreversibility, inevitability and causality, given that an understanding of these three concepts of death varied considerably between 4-5 year olds and 10-11 year olds. When asked "Can a dead person ever become a living person?" relating to irreversibility, the majority of 4-5 year olds responded with "No" and did not elaborate on this perspective further other than to state "No, they will always be dead". Whereas, 10-11 year olds offered more detail around their thinking, and responded with religious/spiritual inferences and explanations. For example, "You can come back to life to be judged", "Your soul lives on, moves into another body and is reincarnated", "If they're not dead for too long they can be brought back to life" and "Yes, resurrect themselves and others in heaven".

To assess understanding of inevitability, children were asked, "Tell me some things that die" and "Do all [examples mentioned in answer to the first question] die?". All children in the 4-5 age group responded by stating that people die, and although there was some variation in additional examples mentioned (e.g., animals, bats, birds), people were always mentioned as dying. Responses to the second question revealed differences in younger children's knowledge compared with the 10-11 year olds. The 4-5 year olds were not as certain about death happening to all people, evidenced by the following responses, " Only some of them die", "Not every one of them – don't really know", "Some because when they are like 100, they could die because they have white hair and get old". However, by 10-11 years old, children had fully grasped the concept that all people die.

In relation to causality, both age groups attempted to answer the questions with as full an explanation as possible, even if this did not always make sense as

with the some of the 4-5 year olds responses, it made sense to them. The reasoning around causes of death when asked, "Can you tell me something that might happen that would make someone die?" were categorised as external events "Earthquake – the earth and houses wobble and break and then people are dead", "When people are killed they can die" and internal events such as illness "People get sick, fall asleep and never awake again" with a more biological explanation, "Heart attack and their heart goes too fast". In response to the same question, 10-11 year olds replied with "Smoking – the lungs get filled with bad stuff, they can't breathe and then it kills them", "A dagger to the heart, not pumping blood round to work the brain, no oxygen then they die", and "Really old – body gets worn out and can't take it anymore, and the heart just stops". As with younger children, these responses can be categorised into illness, external events and old age. However, there is greater clarity and understanding around the biological nature of how someone dies.

With a marginally significant interaction between religion, previous experience of death and serious illness, it was of interest to explore how children's responses on the death interviews differed in relation to these factors. Non-religious children with experience of death and serious illness ($N = 11$) were more likely to report that the cause of death was related to internal events (e.g., cancer, heart attack, disease). One particular child in the 8-9 age group really struggled with the concept of cessation, irreversibility and applicability describing how "mums don't die". This may reflect the child's denial of the consequences of death indicating a permanent separation from their mother, and suppression of anxiety in an attempt at cope with this emotional distress (Yalom, 1980). This highlights the unique experience from which children often base their reasoning around death.

Religious children with no experience of death or serious illness ($N = 16$), were more likely to offer external explanations for causes of death (e.g., being shot, earthquake, arrow in a battle), with a more religious context (e.g., crucifixion). This indicated that children referred to causes of death that were easily accessible in for example the media, history books and through religious teachings at school or place of worship. Given that these children had no previous experience of death, there were some interesting ideas for causality relating to burials, "Stay in a box and can't breathe" and "Put under ground then go up in the sky". These ideas may however be related to religious beliefs and teachings around the rituals of death. Interestingly, both religious and non-religious groups of children had an equally mature concept of death overall.

Chapter 4: Discussion

4.1 Overview

The current study explored the development of children's understanding of death by focussing on the impact of age, and individual differences in cognitive ability, previous experiences of death and/or serious illness, religious beliefs, SES and parents' level of education. The main outcome was to provide teachers, parents and health care professionals with current evidence-based recommendations on how to discuss the issue of death, and support children through the bereavement process. The literature suggested that children's concept of death is related to the acquisition of the five subcomponents of death and reflects a staged model of development (Panagiotaki et al., 2014; Slaughter & Griffiths, 2007; Slaughter & Lyons, 2003). These concepts are *irreversibility* also referred to as *irrevocability or finality* (once dead, people cannot come back to life), *inevitability* (all living things die eventually), *applicability* also referred to as *universality* (death must happen to all living things), c*essation* also referred to as *nonfunctionality* (all bodily and mental processes stop), and causality (death is caused by the breakdown of bodily functions). Consequently, this methodology was applied to specifically explore British children's ideas and thoughts around death.

This chapter begins by summarising the main findings written in sequential order for each hypothesis. The limitations and strengths of the methodology are then discussed to establish the reliability and validity of the findings, and design issues with sampling and measurement. Next, the findings are discussed in relation to the literature reviewed in the introduction, and the theoretical, research and clinical implications outlined. Finally, the conclusions of the current study are presented.

4.2 Summary of Main Findings

H1: It was hypothesised that younger children will have a less sophisticated understanding of death as a biological event than older children.

Hypothesis 1 was supported. The results indicated that younger children do have a less sophisticated understanding of death as a biological event than older children. More specifically, 4-5 year olds had not yet developed a mature understanding of death considered to be a score of 7 or above on the death interview. Whereas, the majority of 6-11 year olds, had grasped the main ideas around death, with some having a fully comprehensive understanding of all five subcomponents. As to be expected, children's overall knowledge of death continued to develop as they aged. However, both the 8-9 and 10-11 year old children reached the same level of understanding, and still did not have what is considered to be a fully mature concept of death (the acquisition of all five concepts).

H2: Based on previous research (Slaughter & Lyons, 2003; Hunter & Smith, 2008), it was hypothesised that cognitive ability, as measured by Intelligence Quotient (IQ), was expected to be positively associated with a mature concept of death as a biological event.

Hypothesis 2 was supported. Cognitive ability as measured by IQ, was positively associated with a mature concept of death as a biological event. More specifically, children who performed in both the average IQ and high average IQ ranges were considered to have a mature concept of death. With a similar understanding across abilities, there was limited variation across the two groups.

However, differences in overall death understanding indicated that children who performed in the low average range had some difficulty making sense of the death concepts and not yet acquired a mature concept of death.

H3: Based on previous research (Lau et al., 1989), children from a high-SES (e.g., occupation) were expected to have a more developed understanding of death than those from a low-SES.

Hypothesis 3 was not supported. Socio-economic status did not impact on children's ability to grasp the five subcomponents of death. Children from the higher professional socioeconomic group were no different in their understanding than those children from the lower routine/manual group. However, the distribution of children in this sample was skewed, with 74% of parents reporting their occupation as professional. Consequently, there was limited variation in the number of participants allocated to the other three occupation groups.

H4: It was hypothesised that irreversibility would be understood first and causality last. Applicability, cessation and inevitability were expected to be understood after irreversibility and before causality.

Hypothesis 4 was supported. Although children acquired knowledge of irreversibility first, their understanding of this concept reached its peak at 8-9 years old when this knowledge appeared to change. Beliefs and ideas that death may not be as final as once thought started to develop at 10-11 years old, indicated by a

reduction in the mean score for irreversibility in this age group. These children were much less certain about the finality of death than even the youngest children. This was evidenced by the oldest children offering more detail around their thinking by responding with religious/spiritual inferences. For example, "You can come back to life to be judged", "Your soul lives on, moves into another body and is reincarnated", "If they're not dead for too long they can be brought back to life" and "Yes, resurrect themselves and others in heaven".

An understanding of applicability, cessation and inevitability developed either at the same time or after irreversibility but before causality. There was a gradual and consistent increase in knowledge between 4 and 11 years old of applicability, the idea that death must happen to all living things including people, across the age groups. However, an understanding of cessation that when someone or something dies, all bodily and mental processes stop, did not appear to change across the age groups. In terms of inevitability, the majority of children perceived that death will happen to all people, particularly if they were old, and understood it as part of the human life cycle. Knowledge around death being inevitable appeared to improve with age.

Causality was the most difficult concept to grasp, and was therefore understood last, with knowledge of this concept consistently developing with age. This was further evidenced by the fact that in their responses, 10-11 year old children had a greater knowledge of the biological workings of the body and realistic causes of death than younger children. This suggested that as children grow older their understanding of the concept of causality and the biological processes that cause death either through internal or external events, developed as a linear

developmental process. However, some children still did not have a full comprehension of causality at age 10 or 11.

H5: Children who have previously experienced the death of a person in their immediate or extended family were expected to have a more mature concept of death than those who have not.

Hypothesis 5 was not supported. Children's previous experience of death did not impact on their understanding of death as a biological event and children with or without this experience had similar levels of knowledge. Interestingly, 60% of parents in this sample reported that their children had experienced someone dying. However, it is not clear how parents communicated this loss, how involved children were in the death rites and rituals, and whether the loss of a family pet could also impact on children's death understanding.

H6: Children who have experience of a serious illness, either themselves or a person in the immediate or extended family will have a more sophisticated concept of death than those without this experience.

Hypothesis 6 was not supported. Children's previous experience of serious illness did not impact on their understanding of death as a biological event and children with or without this experience had similar levels of knowledge. Only 30% of parents in this sample reported that their children had experience of a serious illness, and given the limited numbers in this group further analyses to explore this in

relation to type of illness, who experienced the illness (e.g., child, close relative, distant relative), and the timing of the illness was not appropriate.

H7: Experiences of religion/religious beliefs were expected to have an impact on children's understanding of death.

Hypothesis 7 was not supported. Children whose parents reported that they belonged to a religion had a similar understanding of death as a biological event compared with those who reported not belonging to a religion.

However, previous experience of death and/or serious illness and religious beliefs contributed in some way to the variability in death scores, given that both the two-way and three-way interactions approached marginal significance. Interestingly, non-religious children with previous experience of death, but not of serious illness, had a more advanced understanding of death. Whereas, religious children with previous experience of illness but not of death had a less developed knowledge of the overall concept of death.

4.3 Limitations & Strengths of Methodology

The design of this study provided answers to the research questions presented by administering the death interview (Slaughter & Griffiths, 2007; Slaughter & Lyons, 2003), to systematically explore children's understanding of the five subcomponents of death. This was also mirrored by administering a standardised assessment for measuring cognitive ability in a more robust way than in the previous literature (Cotton & Range, 1990; Hunter & Smith, 2008). Requesting personal

information on SES, religion/religious beliefs, and previous experiences of death and/or serious illness from parents on a specifically designed questionnaire, enabled some of the important factors that might contribute to children's death understanding to be explored in one study. Furthermore, 92 primary school children aged 4-11 years old, living in the UK participated in this study, a considerable improvement on previously small sample sizes. However, given the localised recruitment of participants from two towns in East Anglia, it is questionable as to how far these findings can be generalised. It was anticipated that the sample would reflect a wide range of ethnicity, culture, religion, and SES. However, due to constraints initiated by the doctoral thesis, it was not possible to recruit participants from schools in other geographical locations. By engaging with more schools, the cultural diversity of the sample would be improved upon, and as a result offer a much broader perspective on death understanding in children.

The majority of children's parents reported their ethnicity as White British (83%) and in the professional band (74%) for SES. Furthermore, children's mean performance on the cognitive assessment was slightly above that of the typical population. This may not necessarily be a true reflection of the local community but only of those parents and children who agreed to participate in this study. One state primary school was located in a deprived urban area. Children attending the other two state primary schools were from urban-working/middle class families, and the fourth was a fee-paying urban independent school. The breadth of diversity and cultural/social backgrounds of children at one of the state schools, challenged previously conceived assumptions about East Anglia, in that 30 diverse communities were represented in this school, all speaking different languages.

Measurement of the construct of children's understanding of death by administering the death interview was appropriate as it was then possible to compare findings with previous research (Panagiotaki et al., 2014; Slaughter & Griffiths, 2007: Slaughter & Lyons, 2003). However, the test-retest reliability is questionable given that the procedure did not adhere to the standard research protocol (e.g., sample of 100 participants tested again three months after the first test administration). Moreover, the face validity of the death interview may be compromised as there is doubt around the five concepts of death adequately capturing what a mature concept of death in children is.

The religious and cultural context of a child's upbringing and education cannot be isolated or ignored. An understanding of death is clearly not exclusively related to a biologically-based framework of knowledge acquisition related to the five concepts of death. Children with non-religious atheist views that a life after death does not exist and death signifies the end of life, may be considered to be more advanced and scientific with reference to this model (Slaughter & Griffiths, 2007; Slaughter & Lyons, 2003). However, religious beliefs in an afterlife are central to most universal religions, and by holding these beliefs, children in the current study were considered to be less sophisticated or mature in their understanding. Consequently, these religious/spiritual beliefs should be conceptualised and incorporated into a measure assessing children's understanding of death. It is only when all items reflect all aspects of the subject being tested, and the test instructions are clear, that the test is suggested to be valid (Kline, 1986).

The death interview is exclusively verbal, and requires children to understand questions to fairly abstract concepts that they may never have been asked. As a result, children's acquisition of the death concepts may be impacted upon by the demand on language. Individual differences between verbal and performance ability are not uncommon in children's developing cognitive ability. Furthermore, the language used in the death interview may be construed as ambiguous, and some children were unsure of the purpose of being asked questions relating to cessation (e.g., When a person is dead, do they need food/water/to go to the toilet?). These children may have been confused in relation to why an adult would be questioning their knowledge around whether a dead person may need food, water and the toilet. It is speculated that open ended as opposed to closed questions would have been more effective at eliciting children's idiosyncratic thoughts in relation to this concept. The death interview did however appear to trigger a natural curiosity in some children who were keen to explore their existential concerns around life and death in more depth.

The data violated certain parametric assumptions, and although the choice of statistical tests to some degree addressed this issue, it was also important to consider alternative ways of making sense of the findings (e.g., mean scores, types of responses). However, ceiling effects were detected in this sample, and 11 children scored the maximum possible on the death interview, indicating that the level of variance in death understanding was no longer measured. By achieving the highest possible score, this measure was unable to provide an accurate assessment of children's understanding of death, and suggests that the death interview requires further development with the addition of new concepts, and clarifying questions related to each subcomponent. Therefore a degree of caution will be exercised in the

interpretation of the findings in the current study. Effect sizes were reported and considered medium by Cohen (1988), for main effects of both age and death scores (partial $\eta^2 = .11$), and IQ and death scores (partial $\eta^2 = .08$). Large effects were detected for the impact of age on inevitability (partial $\eta^2 = .21$), and age on causality (partial $\eta^2 = .25$), and between a medium and large effect for age and irreversibility (partial $\eta^2 = .09$). Furthermore, post-hoc comparison tests were used to follow up the effects, and explore in more detail the significance of these findings in relation to the research questions.

Additional weaknesses in the design and threats to internal and external validity existed. For example, the death interview data was not normally distributed across the sample. This would however make sense given that children were expected to develop their understanding of death as they grow older, hence their scores should improve over time. Furthermore, very young children aged 4 to 6 years old may have experienced fatigue during the assessment process, given that they were asked to sit still and concentrate for approximately 40 minutes. Maturation may also be something to consider, given that the recruitment of participants took place at two points in the year; during the summer term at the end of the school year, and at the beginning of the school year (autumn term), after the six-week summer break. It may be that 4-year-old children, who participated in the study in May 2013, were developmentally more advanced given that they had already attended school for 9 months, and would be almost 5-years-old. Whereas 4-year-old children who participated in September 2013, would only just have enrolled into school, and may have many months before their fifth birthday. However, to some extent this may be counterbalanced by differences in ages within each of the age groups.

A further threat to external validity was identified in relation to the volunteer bias, in terms of which schools agreed to participate (Cook, Campbell & Perrachio, 1990). Given the highly emotive topic being explored in this study, it was of interest to consider the headteacher's rationale for the school's participation. Reasons cited were to support children coming to terms with the death of a loved one, and to identify ways in which teachers, parents and healthcare professionals can most helpfully guide children through the bereavement process. It is thought that almost 75% of organisations, school systems and other settings refuse to participate in research studies as a matter of course. So it was of interest to explore the motivation for the 25% who did consent to participate in the current study and may have inadvertently created a volunteer bias. One of the schools had started to collect money for a bereavement charity to raise awareness around how children experience the death of a loved one, and to pre-empt the imminent death of a teacher's partner due to terminal illness. What is clear from the current study is that 60% of children's parents reported previous experience of death in the immediate or extended family, which may have been a motivating factor for their willingness to take part. A school's further rationale for participating could be dependent on the curriculum phase of the school year, whether exams and/or assessments were imminent, and potential concerns over the possible impact on the day-to-day management of the school.

4.4 Relating the Findings to the Literature

Consistent with previous literature (Slaughter, 2005; Speece & Brent, 1984), the majority of 6-11 year olds indicated that they had grasped the main ideas around death, with some having a fully comprehensive understanding of all five subcomponents. The 4-5 year olds had started to grasp the concepts of irreversibility, applicability, cessation and inevitability, which is in line with a recent study (Panagiotaki et al., 2014). Furthermore, an understanding of cessation at this age is also in line with the previous literature (Barrett & Behne, 2005; Bering & Bjorklund, 2004). Inevitability was present in a child's conceptual framework from 4-5 years old, and developed in a positive linear direction until a full comprehension of this concept was obtained at 10-11 years old.

In terms of irreversibility, children understood the idea that death is final and not irreversible, and that once dead, people cannot come back to life, which is also consistent with previous literature (Slaughter & Lyons, 2003). However, in the current study, children's knowledge continued to develop until they reached 8-9 years old, when their understanding appeared to change, which is unlike most other concepts of death where knowledge improves with age. This contradicted a previous study of 163 children where 6-7 year olds found it more difficult to grasp irreversibility than 8-11 year olds (Labrell & Stefaniak, 2011). An explanation for this could be that children with religious beliefs in the afterlife are less likely to hold the belief that death is the complete and irreversible cessation of biological functioning (Candy-Gibbs et al., 1985; Kenyon, 2001).

In relation to not fully understanding the concept of cessation, this may actually function as a protective factor against the absolute realisation that the loved one is gone forever. If the person is considered to still dream or need air after they

die, they can to some extent remain alive in the child's mind and in the afterlife if such a belief exists. Furthermore, as children age they appear to develop a dual conception of death, incorporating both a biological and spiritual dimension (Astuti, 2007). It appears as though religious beliefs are influential in children's understanding of the finality of death, and this offers a dualistic approach where both a spiritual and biological dimension co-exists. This may be as a result of higher order reasoning, problem solving ability developing at this age and the capacity to think in multiple dimensions (Smith et al., 2011). Furthermore, UK media including TV, films, and books may influence and shape older children's views about death.

Unlike the concept of irreversibility, knowledge of causality and death as a biological event continued to improve with age. Some children did have a fully causal explanation for death as a biological event at 4-5 years old, but this was not considered typical given that not all 10-11 year olds had a complete understanding of this concept. It may be that younger children do not have any other explanation for death other than old age, given that their knowledge of causality is extremely limited. In line with the previous literature, it could be as early as 4-6 years old (Carey et al., 1999) or as late as 9 or 10 years old (Carey, 1985) that children have acquired fully causal explanations for the biological world and death understanding.

This is consistent with Inagaki and Hatano's (2002) finding that children as young as 5 can make predictions embedded in their biological knowledge about the workings of the human body and its function. Slaughter (2005) suggested that it is at the even earlier age of 4 that a biological framework for understanding death develops. Conceptual change theory, which relates to children engaging in the learning experience, and updating new theories, adequately explains how this

biological knowledge is restructured (Carey, 1985). The reason for the age difference between these two studies may be as a result of differences in the school curriculum and cultural context of their upbringing either living in Japan or Australia.

In the current study, preliminary support was provided for previous research suggesting that cognitive ability impacts on the development of children's understanding of death (Slaughter & Lyons, 2003; Hunter & Smith, 2008). Cognitive ability as measured by IQ on the Wechsler assessment measures was positively associated with a mature concept of death as a biological event. It should be noted that the overall mean IQ score on the cognitive assessment for all children was above average, compared with the typical population, indicating a slight bias to the right of a normal IQ bell curve. Children in the average and high average IQ groups were similar in their death understanding. Therefore cognition/reasoning ability at this level did not impact on children's knowledge acquisition. However, compared with the average and high average groups, children in the low average ability range had more difficulty understanding the five concepts of death. This is consistent with the previous literature in that children's developing thinking and reasoning skills have an impact on their ability to make sense of what happens when someone or something dies (Hunter & Smith, 2008; Cotton & Range, 1990).

Children with previous experience of death had a more mature concept of death than those without such experience. This should be interpreted with caution, given that this finding only approached marginal significance. When it comes to reasons for death understanding not differing significantly between children who have experienced a serious illness and those who have not, it may be that only children in the final stages of their own illness understand the processes of death

(O'Halloran & Altmaier, 1996). Healthy children and children who were chronically ill appeared to require certain age and development levels to understand the concepts of death, more specifically irreversibility/finality. However, in this study only 29% of children overall experienced a serious illness, and given the small sample it was not considered appropriate to explore this further. Particular aspects of the religious education curriculum may also encourage questions around life, death and the afterlife, impacting on children's understanding of this concept.

Parental socioeconomic status (SES) did not impact on children's understanding of death, which is inconsistent with the literature suggesting that children from a poor urban background in a lower SES will have a less developed understanding of death (Atwood, 1984; Lau et al., 1989; Tallmer et al., 1974). The finding in the current study may be explained by the limited variation in SES across the sample, given that 74% of children's parents reported their occupation as professional. Furthermore, the previous literature referenced is somewhat dated, and there may be other more important family variables that impact on children's development of death understanding.

Children who belonged to a religion and those who did not, were no different in their understanding of what happens when someone or something dies, which is consistent with the literature suggesting that there are more similarities than differences in children's death understanding cross-culturally (Kenyon, 2001). One explanation for this could be that to accommodate the culturally diverse make-up of the UK and provide a wide-ranging experience, British children are now taught a wide variety of religions in schools. This may provide children with differing views to that of their parents who completed the questionnaire declaring, whether their

children belong to a religion. Furthermore, it may be that the richness and colour of children's experiences, in relation to death understanding, have not adequately been explored the current study, given the limited diversity of this sample.

The marked difference between 4-5 year olds and 6-11 year olds in the development of a mature concept of death could in fact coincide with their stage of education, and where on the national curriculum the child was. It is suggested that if children appear to be verbally competent, even at the young age of 4, they may have an understanding of death and be able to discuss this openly (Lansdown & Benjamin, 1985). In UK state schools, biology-based science including human development is not taught as part of the science curriculum until 5-6 years old (Year 1/Key Stage 1), and in fact life cycles, which is the only time that death is taught specifically, is not until 9-10 years old (Year 5/Key Stage 2). However, from the age of 5 onwards children are encouraged to talk about pets and their needs/life expectancy, and human growth from birth to death in Personal, Social and Health Education (PSHE). The independent school that participated in this study reported that children start learning about living things from nursery. However, the concept that living things die, is not taught until Year 2 (6-7 years old) where children learn about what an organism needs to sustain life, but this is not specific to humans. This topic is then revisited in more depth again in Year 4 (8-9 years old) but not with reference to human biological functioning.

4.5 Theoretical Implications

Overall, something interesting is happening between the ages of 4-5 and 6-11 as the variation in knowledge acquisition is greater between these two stages of

development. Case and Okamoto (1996) suggest that 4-year-olds are only able to process different domains of knowledge separately as though they are stored in two separate files. In contrast to 6-year-olds, who begin to display a more integrated system of knowledge, storing it into a single file. In the current study, as children move from the 8-9 to 10-11 age group, their overall knowledge around death in terms of the concepts explored in the death interview remained approximately the same when comparing mean scores.

However, on an individual concept level, children's understanding of irreversibility appeared to change to accommodate more than one perspective on the finality of death by incorporating existential, spiritual and religious ideas. This relates to the idea that at 10-11 years old children develop the ability to tolerate ambiguity, and the capacity for holding and integrating opposing and contradictory views (Davies, 2011). As children's knowledge becomes more complex, their ability to hypothesise and formulate develops. This challenges the assumptions of what a mature concept of death is, and the findings in the current study do not support the staged model of death concept acquisition as outlined in previous research (Panagiotaki et al., 2014; Slaughter & Griffiths, 2007).

It is suggested that children may develop their understanding of death according to a U-shaped developmental curve, as this more accurately reflects a transition in learning. U-shaped curves arise dynamically when systems developing in parallel develop at different rates particularly when mastery over rules and exceptions occurs (Rogers, Rakison & McCelland, 2004). This would relate to children's difficulty making sense of the finality of death, particularly when there appear to be many other ideas and perspectives to take into account before arriving at an overall conclusion. Furthermore, this current study provides preliminary support

for the Overlapping Waves Theory of developmental variability in thinking (Siegler, 1996). The process of variability, change, and choice of strategies used for problem solving, and how progress reflects an oscillation between these strategies, could account for how children in the current study developed a more advanced integrative understanding of death.

The current study has implications for the Piagetian Theory of Cognitive Development (1963), given that the acquisition of the five subcomponents of death and knowledge around death, did not appear to develop according to age-related sequential stages. The stages of cognitive development do not appear to offer a framework for how children come to understand death, given that their knowledge was not stage-related. However, historically it offered an explanation for the logical progression of knowledge and acquisition of the five subcomponents of death (Kastenbaum, 1967; Anthony, 1972; Koocher, 1973; Kane, 1979). Alternative theories, offering greater emphasis on the role of experience, and socio-cultural factors, are important when understanding individual differences in children's awareness of death.

Consequently, it may be more useful for teachers, and health care professionals to adopt the neo-Piagetian approach to children's cognitive development, which favours variability and individual differences in learning. The current study highlights that children's cognitive functioning at any given age may be so variable across domains of knowledge, that it is difficult to place them in any one stage (Case & Okamoto, 1996) Furthermore, children's death concept acquisition may be impacted upon by brain maturation. Significant differences in understanding appear to be evident at 6 and 10 years old, the ages at which growth spurts in frontal lobe development occur (Klinberg et al., 1999). The marginal

difference in death understanding in children with previous experience of death in this study could be underpinned by Script Theory (Nelson & Gruendel, 1986). This describes how exposure to death (e.g., rituals, rite of passage) enables children to predict future events based on what they have experienced and learnt. By responding to and developing in relation to their environment, the emphasis is placed on cultural and social factors shaping children's thinking around death (Vygotsky, 1978). Furthermore, this study would lend preliminary support to the idea that the development of children's understanding of death is an apprenticeship in learning through guided experience from more experienced others (Rogoff, 1990).

4.6 Research Implications

It would be of interest to further explore whether children include themselves in the idea that death is inevitable, and if not, what the clinical implications of this may be. Focussing on children's existential ideas of life and death, and when a curiosity around their own mortality becomes visible could also be useful. The qualitative information provided by the religious explanations for children's change in understanding of irreversibility could be analysed in more detail. This would add a richness to the data by quantifying children's responses into categories and/or taking a qualitative approach to the data. It is recommended that this research is extended to children with learning difficulties and learning disabilities, given that the current study indicated that children in the low average range of ability may have some difficulty making sense of what it means when someone or something dies. There may also be differences in the way in which death is conceptualised and

managing the grieving process, in relation to whether the death was sudden and traumatic or as a result of a prolonged illness or disease.

Given the impact of the school curriculum and teaching at various stages in a children's development, future UK studies may wish to consider allocating children to groups according to key stages: under 5's; key stage 1 (5-7yrs.); key stage 2 (7-11 yrs.); key stage 3 (11-14 yrs.). It would be of interest to explore death understanding in adolescence particularly with reference to irreversibility, providing a further comparison group. Potential access issues (e.g., language barriers, lack of understanding around topic, anonymity, confidentiality), need to be addressed to encourage people from black and minority ethnic groups to opt-into research of this kind. And finally, replication of this study with a larger sample of British primary school-aged children reflecting the cultural and religious diversity of the UK, would provide a more representative view of how these children conceptualise illness and death. Development of a more robust and standardised assessment measure for both clinical and research purposes is also recommended, to improve both the reliability and validity of the measure. Further examination of the psychometric properties of the death interview may now possible given the availability of published data, and could be considered for a future study. In conclusion, it would be useful to examine whether a structured interview is the most conceptually valid way of measuring children's death understanding.

4.7 Clinical implications

It is anticipated that as a result of the findings from the current study, guidelines can be developed to inform teachers, parents and health care professionals on children's understanding of death at different ages. This should also take into

account variability and individual differences in children's understanding, particularly in relation to children performing at a low average range of ability. The current study therefore also raises the importance of being mindful of the idiosyncratic nature of children's understanding of death, and the potential impact of religious/cultural beliefs, personal experience of death and/or serious illness. A complete and comprehensive assessment of these contributing factors, and an open and honest dialogue to explore what children think they know happens to someone or something (e.g., dog, cat) when they die, is recommended as good practice.

Conversations with parents would further augment the therapeutic work/school support, and enable children to feel understood in their world in terms of what makes sense to them. This is one of the guiding principles of a Steiner Waldorf education, designed to work in harmony with the different phases of each child's development by giving equal attention to their physical, emotional, intellectual, cultural and spiritual needs. In this environment, individual differences in cognitive development are embraced and educational interventions more focussed and specific, enabling pupils to reach their optimum possibility. This philosophy could be extended to support children in coping with loss and bereavement given that significant individual differences in death understanding and experiences of grief have been highlighted. As a consequence individually tailored-interventions are recommended.

It may be that a process of defensive denial operates in adults in such a way that obstructs the view of reality, and non-acceptance that children can process the death of a loved one. Children's misunderstandings around death may in part be as a result of not experiencing the death and loss in the way that an adult might, and by being sheltered from experiencing the intense emotions of grief. It is suggested that

when children have a sense of an adult's anxiety towards death, they supress their curiosity, and begin an internal dialogue around the ideas of life and death (Yalom, 1980). It appears from the current study that young children have a more developed understanding of death than has previously been acknowledged.

In the current study, 75% of children aged 4-5 understood that death is inevitable, irreversible, and that bodily/mental functions stop when someone dies (cessation). Furthermore, 25% of young children were able to provide internal or external reasons for someone dying, and understood the biological explanations for the cause of death. Therefore children at this age have a reasonable understanding of the biology of death, and communication should be tailored to represent this level of knowledge. However, it is speculated that the cognitive understanding of the biology of death may not necessarily be a significant factor in children's adjustment to bereavement. Concrete explanations around the impact of the consequences of the death of a loved one, and an awareness of children's typical emotional responses, would seem to be more important. However, questions may be asked relating to the causes of death, and adults should not avoid this level of detail, as it may help children to make sense of what has happened.

Children aged 10-11 can be expected to have a more complex belief system and may be interested in spiritual, religious, existential concerns of life and death. There is considered to be more reflection at this age on the justice/injustice of the event, connection with fate, and parapsychological phenomena, and existential concerns of life and death (Dyregrov, 2008). It is interesting that the Daffodil project, set up by the Marie Curie Trust, selected 10-11 year olds to meet with terminally ill people in their hospice. The findings from the current study would suggest that children at this age are better equipped to make sense of death and can

grapple with conflicting views. It is hoped that findings from the current study will encourage UK bereavement charities to update their current guidelines. This may also support adults' conversations with children who are seriously ill on the palliative care pathway, potentially inspiring further research, adding to the seminal work of Bluebond-Langner's (1978) study of dying children's discussions around death.

4.8 Conclusions

The findings from this study should be interpreted with caution given the methodological issues related to the measurement of children's understanding of death. However, in support of previous research it appears that a combination of age, cognitive development, direct and indirect experience, and the socio-cultural context of children's lives, that contributes to an understanding of health, illness and death (Eiser, 1989). Furthermore, from preschool years to adolescence there are significant developmental differences in children's understanding of death, and consequently their experience of grief. It is not possible to categorically state that there are no other plausible alternative explanations to consider in the enhancement of our knowledge of children's understanding of death. Parental talk about death and dying, and the family script around loss and coping (e.g. emotion-focussed vs. solution-focussed), could also account for some of the variation in children's death understanding. Attachment style, personality type, expressions of grief and spiritual connections have also been identified as individual differences in death understanding (Andrews & Marotta, 2005).

This current study has provided preliminary evidence to suggest that children begin to understand what happens when someone dies at approximately 4-5 years old. Some children at this early age have grasped all five concepts of death, whereas the majority started to understand irreversibility, cessation, applicability and inevitability. There is a clear distinction between 4-5 and 6-11 year olds knowledge acquisition, given that the older children have grasped many of the ideas around death. Interestingly, when children reach the age of 10-11, they begin to question the ideas around life and death, with particular reference to the irreversibility/finality of death. They consider that the dead may live on in an afterlife, and as a result their concept of irreversibility changes to reflect this new way of thinking. Consequently, it is proposed that 4-11 year old children develop a dualistic approach to their reasoning and understanding of death, according to a U-shaped development curve, with considerable change and variation in their thinking over time.

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Appendix A

Death interview

Death Interview
(Slaughter & Griffiths, 2007)

Participant ID Number ☐

Questions	Scoring Criteria	Subcomponent
1. "Tell me some things that die" (if people are not named ask, "Do people die?") 2. "Do all [entities mentioned in answer to question 1] die?"	0 Points - People were not mentioned as dying, and when given question 2, people were held not to die 1 Point - People were not mentioned as dying, and when given question 2, people were held not to die. Or, people were mentioned as dying but when given the forced choice, people were held not to die 2 Points - People were mentioned as dying and all people were held to die	Inevitability
3. "Tell me some things that don't die"	0 Points - Only living things were mentioned (e.g. "kids, dogs, fish") 1 Point - A mixture of living and nonliving things were mentioned (e.g. "books, bricks, trees, old people") 2 Point - Only nonliving things were mentioned (e.g. "houses, fences, bricks")	Applicability
4. "Can a dead person ever become a living person?" 5. "If a person dies and they haven't been buried in their grave for very long can they become a live person again?"	O Points - Incorrect on both questions 4 and 5 (answers yes to both questions) 1 Point - One of the questions 4 or 5 correctly answered (answers "no" to one question) 2 Points - Both questions 4 and 5 answered correctly (answers "no" to both questions)	Irreversibility
6. "When a person is dead..." (a) Do they need food? (b) Do they need to go to the toilet? (c) Do they need air? (d) Can they move around? (e) Do they have dreams? (f) Do they need water?	0 Points - Two or fewer of items (a) - (f) correctly answered 1 Point - More than 2, but fewer than 6 of items (a) - (f) correctly answered 2 Points - All items (a) - (f) correctly answered	Cessation
7. "Can you tell me something that might happen that would make someone die? When _____ happens why does that person really die?"	0 Points - External cause of death given (e.g. "knife because they are bad") 1 Point - Reference to the body was given but did not refer to a biological cause (e.g. "knife because it cuts into your body") 2 Points - Fully explicit biological casual answer (e.g. "knife because it cuts your body and all your blood comes out so you die")	Causation

Appendix B

Parent questionnaire

Parent/Guardian Questionnaire Version 1.2 (13th May 2013)

Participant Identification Number: 001

Gender of your child: **Male ____** **Female _____**	**Your relationship to your child:** **Mother ____** **Father ____** **Other (please specify) _____**
Your child's date of birth:	**Your child's ethnicity:**
Your child's school Year:	**Your child's school:**
Your level of education *(please tick all that apply)* **University Degree / NVQ4 / NVQ5 or equivalent ____** **Higher Education below degree ____** **Technical College Exams ____** **City & Guilds ____** **Secretarial College Exams ____** **Completed Apprenticeship ____** **NVQ3/GCE A level or equivalent ____** **Secretarial College Exams ____** **NVQ2/GCE O level or GCSE ____** **NVQ1/CSE other grade or equivalent ____** **No qualification ____** **Other, please describe _____** **_____** **_____**	**Your occupation:** **Professional ____** **Managerial/technical ____** **Skilled non-manual ____** **Skilled manual ____** **Semi-skilled manual ____** **Unskilled manual ____**
At what age did you finish full-time education? **____ years**	**What is your annual household pre-tax income?** *Please tick one only.* **Up to £10,000 ____** **Over £10,000 to £30,000 ____** **Over £30,000 to £50,000 ____** **Over £50,000 to 70,000 ____** **Over £50,000 to £70,000 ____** **Over £70,000 ____** **I do not wish to share this information ____**

Do you regard yourself as belonging to any particular religion? Yes ____ No ____

If you answered yes:

- **Which religion? _____**
- **Apart from special occasions such as weddings, funerals or other ceremonies, how often do you and your child attend services connected with your religion?**

  Weekly ____
  Twice a month ____
  Once a month ____
  A few times a year ____
  Other (please specify) _____

What particular beliefs do you hold around death (e.g. belief in afterlife, traditions)?

Has your child previously experienced a serious illness? Yes ____ No ____
If you answered yes:

- **What type of illness? _____**
- **Who suffered from it?**
  My child _____
  A close relative (please state) _____
  A distant relative (please state) _____
  A friend (please state) _____
- **When did it happen? _____**

Has your child previously experienced somebody dying? Yes ____ No ____
If you answered yes:

- **What was their relationship to your child? _____**
- **How close was the person to your child?**

  Very close ___ Quite close ___ Somewhat close ___ Not at all close ___
- **How long ago did it happen? _____**

Thank you very much for completing this questionnaire.

Please return it with the signed consent forms to reception at school.

Appendix C

Letter to headteacher

University of East Anglia

Faculty of Medicine and Health Sciences
Postgraduate Research Office
University of East Anglia
Norwich NR4 7TJ
United Kingdom

Email: m.hopkins@uea.ac.uk

Headteacher
School Name
Address
Address
Address

Date

Dear Headteacher

I am a Trainee Clinical Psychologist at the University of East Anglia (UEA), conducting research on how children's understanding of death develops between the ages of 4 and 11 years old. More specifically, the impact of age and cognitive ability will be explored.

This research will inform best practice for teachers and health care professionals in supporting children who are coming to terms with bereavement. It is anticipated that by providing guidelines on how best to engage children in open discussions about the meaning and consequences of death that are age appropriate, and take account of their cognitive ability, it will facilitate their ability to cope with and process their emotions.

Each child will be seen individually for an interview that will last approximately 10 minutes, involving some simple questions such as "Tell me some things that die" and "When a person is dead do they need food?" Children will then be asked to complete a vocabulary test, and puzzles with patterns and objects, which will take 30 minutes in total.

These assessments have been used extensively in previous research, and children tend to enjoy being involved in the research process. Ethical approval has been granted from UEA for me to conduct this study, and it is now your decision as to whether you would like to involve children at St Helens Primary School in this study.

I will phone you in a few days with a view to arranging a short meeting to explain the research in greater detail. My research supervisors are Georgia Panagiotaki and Kiki Mastroyannopoulou and can be contacted by email at g.panagiotaki@uea.ac.uk and k.mastroyannopoulou@uea.ac.uk or by telephone on 01603 593310.

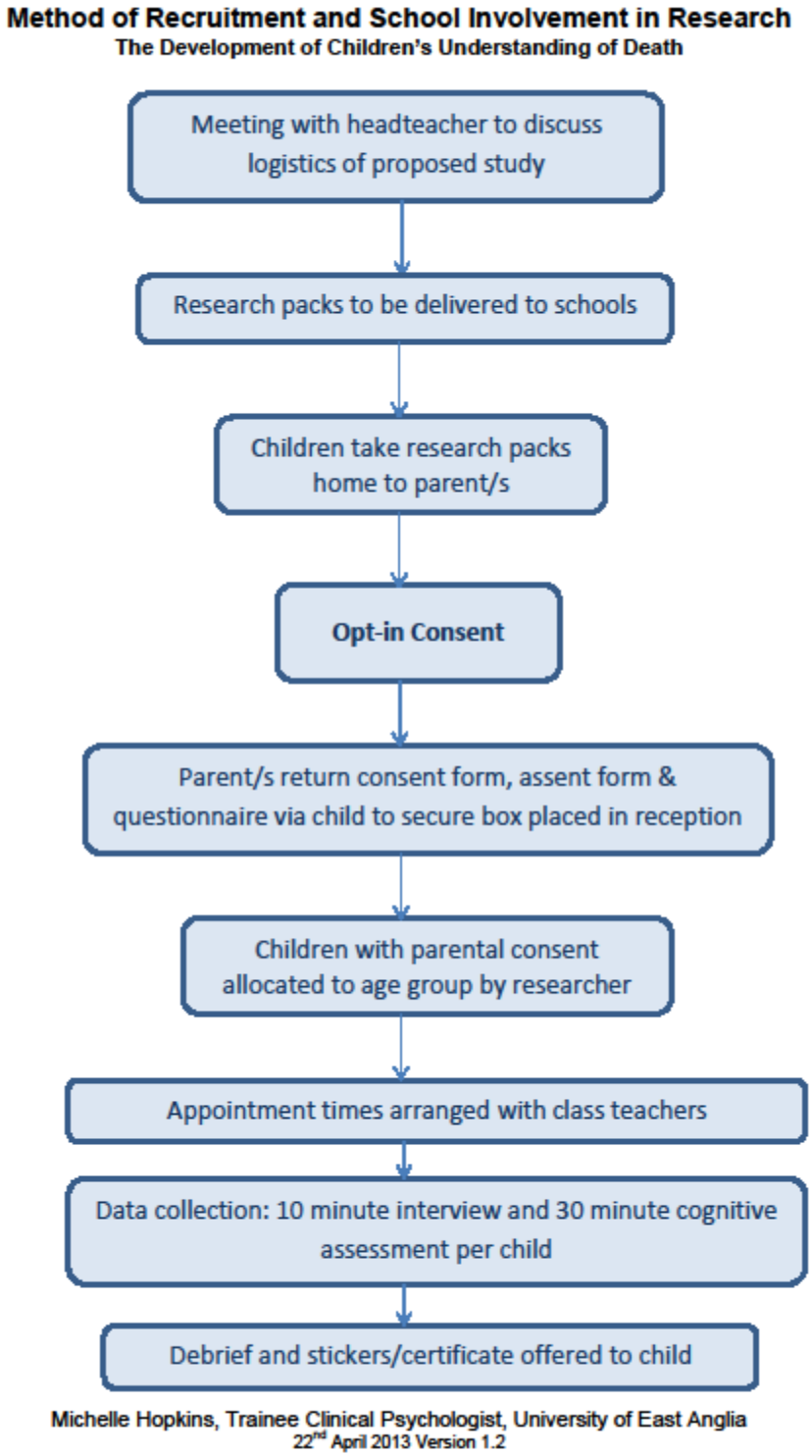
I look forward to meeting with you soon.

Yours sincerely

Michelle Hopkins
Trainee Clinical Psychologist

Appendix D

Flow chart of recruitment and data collection



Appendix E

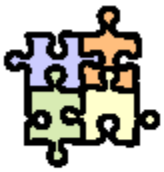
Participant information sheet

Participant Information Sheet
13th May 2013 Version 1.2

Hello, my name is Michelle and I am studying to be a psychologist. We talk to people about what they think, feel and do, and help them to feel better.

I am doing a project for my university course and I would really like to hear about what children think happens when someone dies.

I would like you to answer a few questions, and also tell me the meanings of some words, and try out some puzzles.



Our talk will be private and I will not tell your teachers or your family what you say.

You can ask for the interview to stop at any time. It will take no longer than 40 minutes.

If you would like to talk to me, please make sure you are happy to take part.

You can say yes or no. It is up to you whether you take part.

If you would like to know more about the project, please email me m.hopkins@uea.ac.uk or speak to your teacher at school.

Thank you for taking the time to read this letter and for your help.

Best wishes

Michelle Hopkins
Trainee Clinical Psychologist

Appendix F

Participant assent form

Participant Assent Form Version 1.2 (13th May 2013)

Participant Identification Number: 001

If I talk to Michelle about her project…

- I understand that the interview will be private

- I understand that I can stop the interview at any time.

You now need to decide if you would like to take part in the project.

If you would like to talk to Michelle about her project, please put a circle around No or Yes.

No

Yes

Please can you sign this form and take it back to school.

Signed……

Please print your name……

Appendix G

Parent information sheet

University of East Anglia

Faculty of Medicine and Health Sciences
Postgraduate Research Office

University of East Anglia
Norwich NR4 7TJ
United Kingdom

Email: m.hopkins@uea.ac.uk

13th May 2013 Parent Information Sheet – Version 1.5

I would like to invite you and your child to participate in this research project, which aims to explore how children's understanding of death as a biological event develops between the ages of 4 and 11 years old. I am also interested in how factors such as religion and previous experience of death in the immediate or extended family might influence children's ideas in this area.

What is involved in taking part in this study?
Each child will be seen individually for an interview that will last approximately 40 minutes. At the beginning of the interview, they will be asked if they would mind sitting down with me to answer a few questions. They will also be told that there are no right or wrong answers, and that they do not have to answer any questions if they do not want to.

What will my child be asked to do?
During the interview, children have the right to stop at any time, and will be given a "STOP" card to show me if they do not wish to carry on. The interview will involve some simple questions such as "Tell me some things that die" and "When a person is dead do they need food?" Children will also be asked to complete a vocabulary test, and puzzles with patterns and objects.

How will agreeing to take part in this study impact on my child?
Participation in this study is entirely voluntary and I will ensure that your child experiences the least disruption to his/her school work on the day. It is up to you to decide whether to take part or not; choosing for your child not to take part will not disadvantage you in any way. If you do decide for your child to take part, he/she is still free to withdraw at any time if you change your mind and without giving a reason.

What are the benefits and/or potential harm involved in this study?
The level of risk in this study has been assessed as "minimal", which means that most children will enjoy the experience of being involved, contributing their experiences and knowledge to helping other children, and learning about how psychologists do research. However, I acknowledge that for some children, talking about death might be a sensitive issue and may raise some difficult thoughts and feelings. Should this happen, the session will be stopped immediately.

What happens if my child gets upset during the interview?
In the event your child becomes distressed, the study will be stopped immediately, and I will stay with and comfort your child until such time (e.g. break or lunch) as the previously identified appropriate adult becomes available. This person will be someone from the teaching/school staff with whom the child has a good trusting relationship. At this point, I will feedback any concerns to the appropriate adult, and leave to their discretion (in accordance with school policies and procedures), how best to continue to manage the situation. Your child will not at any point be left alone. This procedure may vary according to the school, and will be discussed with the headteacher prior to the study to ensure that a suitable distress procedure is set up from the beginning.

Should you wish to access further support for your child, the following organisations can be contacted:

- www.childbereavement.org.uk t: 01494 568900
- www.winstonswish.org.uk t: 08452 03 04 05
- www.childline.org.uk t: 0800 11 11
- www.samaritans.org t: 08457 90 90 90

How will information my child discusses remain confidential and anonymous?
The information collected during this study will be treated as strictly confidential and handled in accordance with the provisions of the Data Protection Act 1998. However, in terms of duty of care, if your child reveals something that causes concern for themselves or others, then confidentiality will be broken and appropriate action taken.

During the interview children's answers will be recorded and kept in a locked filing cabinet in the researcher's office. The interview will also be audio recorded. All data will be stored on a password protected computer and the only people to have access to the data will be myself, my supervisors and external examiners, if necessary. Furthermore, the information collected will remain completely anonymous and it will not be possible to identify your child in any future research publications. Children's names or any other identifying information will not be used under any circumstances in writing about this research.

Where can I get more information from?
Please discuss this study with others, if you wish, or ask me anything that is not clear or you would like more information on. You can contact me by email at m.hopkins@uea.ac.uk or by meeting with me at your child's school, should you prefer to meet face-to-face for a discussion. You can also contact the two research supervisors on this project should you wish to (see contact details below).

What to do if I agree to my child taking part in this study?
If you agree to your child taking part in this research, could you please read the enclosed consent form, write your initials in the boxes, and sign the form, as well as complete the parents' questionnaire. Once you have done this, please return one copy of the consent form and questionnaire in the envelope provided to reception at your child's school. It would be helpful not to let your child know what questions they will be asked during the interview.

How can I make a complaint?
Should you wish to make a complaint please contact the following:

- Eleanor Sutton, Research Supervisor & Clinical Lecturer, UEA
  Email: eleanor.sutton@uea.ac.uk
  Georgia Panagiotaki, Research Supervisor, Lecturer in Developmental Psychology, UEA
  Email: g.panagiotaki@uea.ac.uk
- Margo Ononaiye, Independent Advisor & Senior Clinical Lecturer, UEA
  Email: m.ononaiye@uea.ac.uk

Many thanks for taking the time to read through this information and consider your child's involvement in this study. I really appreciate it!

Best wishes

Michelle Hopkins
Trainee Clinical Psychologist
(Enhanced CRB Clearance)

Appendix H

Parent consent form

University of East Anglia

Faculty of Medicine and Health Sciences
Postgraduate Research Office

University of East Anglia
Norwich NR4 7TJ
United Kingdom

Participant Identification Number: 001

PARENT CONSENT FORM
13th May 2013 Version 1.3

Title of Project: The Development of Children's Understanding of Death
Name of Researcher: Michelle Hopkins, Trainee Clinical Psychologist

Please initial all boxes

1. I confirm that I have read and understood the parent information sheet dated 13th May 2013 (Version 1.5) for the above study. ☐
2. I understand that my child's participation is voluntary and I am free to withdraw my child from the study at any time without giving a reason. ☐
3. I consent to the collection of my child's personal information and understand that anonymity will be maintained. Therefore it will not be possible to identify my child in future research publications. ☐
4. I understand that such information will be treated as strictly confidential and handled in accordance with the provisions of the Data Protection Act 1998. ☐
5. I have had the opportunity to consider the information and ask questions, and agree that this study has been explained to my satisfaction. ☐
6. I agree for my child to take part in this study and for the session to be recorded. ☐

Name of Participant	Date	Signature
Name of Person Taking Consent	Date	Signature of Parent

Appendix I

Introduction to study

Introduction to Study
22nd April 2013 Version 1.1

Hi *[child's name]*

My name is Michelle
- Ice breaker ideas – favourite subject, friendships, favourite teachers

I am trying to learn about what children your age think happens when someone or something dies.

I would like you to answer a few questions, tell me the meanings of some words, and try out some puzzles.

Just to remind you that you don't have to take part if you don't want to.

If you are happy to take part, remember that there are no right or wrong answer, and if there are any questions you don't want to answer, that's fine.

If you want to stop at any time, just tell me or show me this "STOP" card and we will finish.

OK, is it alright to continue with the questions and puzzles?

Do you have any questions before we start?

Just let me know if you want to stop at any time.

Appendix J

STOP card for younger participants

Appendix K

Participant debrief

Participant Identification Number:

Debrief Information – After Engaging in Research

Thank you [*child's name*] for taking part in my research and helping out today. I really appreciate it!

Do you have any questions for me before you go?

Just to let you know again that the aim of this study was to understand what children think happens when someone or something dies. Also, to see if children of different ages understand more or less about it [*only read out to older children*]

Were there any questions or puzzles that you didn't understand or didn't like doing? [*If they were not happy with any, ask why*]

Is there anything that upset you or you found difficult?

Thank you again for taking part in the study – you have been great!

I would like to give you a certificate that you can take home with you and a sticker [*age dependent*] to say thank you. Which one would you like?

Appendix L

Certificate of participation

CERTIFICATE

This is to confirm that

_____

took part in a clinical psychology research project on Thursday 23rd January 2014

Thank you very much for your help!

_____

Michelle Hopkins
Trainee Clinical Psychologist

University of East Anglia

Appendix M

Ethical approval in principle

Faculty of Medicine and Health Sciences Research Ethics Committee

University of East Anglia

Michelle Hopkins
Postgraduate Research Office
Room 2.30
Elizabeth Fry Building
University of East Anglia
Norwich
NR4 7TJ

Research & Enterprise Services
REN West (5CI)
University of East Anglia
Norwich
NR4 7TJ

Email: fmh.ethics@uea.ac.uk
Direct Dial: +44 (0) 1603 59 1506

Web: http://www.uea.ac.uk

26th March 2013

Dear Michelle

The Development of Children's Understanding of Death

Our Ref: 2012/2013-55

The submission of your research proposal was discussed at the Faculty Research Ethics Committee meeting on Thursday 21st March 2013.

The Committee were happy to approve your application in principle but have the following concerns which they would like you to address and amend accordingly:

1. Ensure that your recruitment process will take place through the Opt-In Consent and not the Opt-Out Consent, which the Committee have deemed as inappropriate.
2. Clarify how you will decide whether a child has a good command of the English language.
3. The Committee were happy to leave at your discretion to decide whether or not a child becomes distressed during the interview. They have however requested that you set up a suitable distress procedure and organise a facility to support the distressed participants (and include this in the Information Sheets).
4. There is an assumption that all the documentation that you will use will be coded. The Committee have asked that you confirm this.
5. Ensure that a letter of thanks will be sent to all those who express an interest, whether they are selected for the study or not.
6. Insert version numbers and dates on the Information Sheets and Consent Forms.
7. Set up suitable contact and complaints procedures in your Information Sheets. The participants should be provided with contact names, telephone numbers and / or email addresses for yourself, your supervisor and for the Head of School.
8. Ensure that the Parent Information Sheet has sub-headings and also clarify the benefits / dangers of taking part in the study.
9. Also on the Parent Information Sheet, set up an appropriate Duty of Care disclosure explaining that if participants reveal something that causes concern for themselves or others, then confidentiality will be broken and appropriate action taken.
10. On page 10/29, insert the following sentence: "If a child is visibly distressed and taken out during the interview, the parents will be advised and given information for local support sources."

11 Please be advised that there is one outstanding issue relating to whether it is necessary to insert a confidentiality clause on the Child Information Sheet. The Chairman of the Committee is seeking further guidance on this from the University REC and will come back to you about this in due course.

Please write to me once you have resolved/clarified the above issues. I require documentation confirming that you have complied with the Committee's suggestions. The Committee have requested that you detail the changes below the relevant point on the text in this letter and also include your amendments as a tracked change within your application/proposal. The revisions to your application can be considered by Chair's action rather than go to a committee meeting, which means that the above documentation can be resubmitted at any time. Please could you send your revisions to me as an attachment in an email as this will speed up the decision making process.

As your project does not have ethics approval until the above issues have been resolved, I want to remind you that you should not be undertaking your research project until you have ethical approval by the Faculty Research Ethics Committee. Planning on the project or literature based elements can still take place but not the research involving the above ethical issues. This is to ensure that you and your research are insured by the University and that your research is undertaken within the University's 'Guidelines on Good Practice in Research' approved by the Senate in July 2004.

Yours sincerely

Yvonne Kirkham
Project Officer

Appendix N

Ethical approval (final)

Faculty of Medicine and Health Sciences Research Ethics Committee

University of East Anglia

Michelle Hopkins
Postgraduate Research Office
Room 2.30
Elizabeth Fry Building
University of East Anglia
Norwich
NR4 7TJ

Research & Enterprise Services
West Office (Science Building)
University of East Anglia
Norwich Research Park
Norwich, NR4 7TJ

Telephone: +44 (0) 1603 591568
Email: fmh.ethics@uea.ac.uk

Web: www.uea.ac.uk/researchandenterprise

23rd April 2013

Dear Michelle,

Project title: The Development of Children's Understanding of Death
Reference: 2012/2013-55

The amendments to your above proposal have been considered by the Chair of the Faculty Research Ethics Committee and we can confirm that your proposal has been approved.

The Chair has confirmed that you need to insert a confidentiality clause on the Parent Information Sheet but not on the Child Information Sheet.

Please could you ensure that any further amendments to either the protocol or documents submitted are notified to us in advance and also that any adverse events which occur during your project are reported to the Committee. Please could you also arrange to send us a report once your project is completed.

The Committee would like to wish you good luck with your project.

Yours sincerely,

Yvonne Kirkham
Project Officer

Appendix O

Ethical approval with confidentiality clause

Faculty of Medicine and Health Sciences Research Ethics Committee

University of East Anglia

Michelle Hopkins
Postgraduate Research Office
Room 2.30
Elizabeth Fry Building
University of East Anglia
Norwich
NR4 7TJ

Research & Enterprise Services
West Office (Science Building)
University of East Anglia
Norwich Research Park
Norwich, NR4 7TJ

Telephone: +44 (0) 1603 591722
Email: fmh.ethics@uea.ac.uk

Web: www.uea.ac.uk/researchandenterprise

22nd May 2013

Dear Michelle,

Project title: The Development of Children's Understanding of Death
Reference: 2012/2013-55

Thank you for your e-mail dated 14.05.13 notifying us of the amendments you would like to make to your above proposal. These have been considered by the Chair of the Faculty Research Ethics Committee and we can now confirm that your amendments have been approved.

Please can you ensure that any further amendments to either the protocol or documents submitted are notified to us in advance, and also that any adverse events which occur during your project are reported to the Committee.

Please can you also arrange to send us a report once your project is completed.

Yours sincerely,

Yvonne Kirkham

Yvonne Kirkham
Project Officer

Appendix P

Poster presentation for UEA postgraduate research conference March 2014

Doctoral Programme in Clinical Psychology

Postgraduate Research Conference 2014

University of East Anglia

The Development of Children's Understanding of Death

Michelle Hopkins, Dr Georgia Panagiotaki & Dr Eleanor Sutton

"*They (his parents) were dead and gone…poor James was still very much alive, and all at once found himself alone and very frightened in a vast unfriendly world*" – James & the Giant Peach (Dahl, 1961)

Background

- The development of children's understanding of death is still not clearly understood.
- There is considerable discrepancy between the age at which children begin to understand what happens when someone dies, and when this is fully integrated into a child's conceptual framework.
- Children acquire a mature concept of death (understanding of all five subcomponents of death), at different rates according to their age (Slaughter & Griffiths, 2007), and developing cognitive ability (Hunter & Smith, 2008).
- However, inconsistencies exist across many of the published studies with reasons for this often relating to methodological shortcomings (e.g., small samples, limited age range, use of unstandardised measures).
- Previous studies assessed cognition with Piagetian tasks (e.g., class inclusion, conservation) known to underestimate children's ability.
- To date, there is no published research on the development of British children's understanding of death who are of primary school age (4-11 years old).

Research Hypotheses

H1. Younger children will have a less sophisticated understanding of death as a biological event than older children.

H2. Irreversibility will be understood first as it is considered to be the easiest to grasp, and causality acquired last being the most complex idea.

H3. Cognitive ability as measured by intelligence quotient (IQ), will be positively associated with a mature concept of death.

Design/Methodology

- Quantitative, between-groups design.
- Non-clinical sample (N=92; m=41, f=51) across the age groups (4-5yrs, 6-7yrs, 8-9yrs, 10-11yrs) recruited from four primary schools in Suffolk.
- Death Interview (DI; Slaughter & Griffiths, 2007), age-appropriate standardised cognitive assessments (Wechsler, 2003; 2011), and parent questionnaire for demographics.
- Preliminary analyses conducted using Pearson's product-moment correlation coefficient (*r*).

Results

- Preliminary findings indicate a significant positive correlation between age and understanding of death ($r = .32$, $p < .01$), which supports H1.
- This is explored in more detail in Figure 1. which illustrates understanding of the five subcomponents of death, as measured by the DI, according to age group.
- Further analyses indicated a significant positive correlation between age and inevitability ($r = .44$, $p < .01$), applicability ($r = .32$, $p < .01$), and causation ($r = .48$, $p < .01$).
- A significant negative correlation was revealed for age and irreversibility ($r = -.22$, $p < .05$), indicating that older children find it more difficult to understand, that when a person is dead they cannot come back to life.

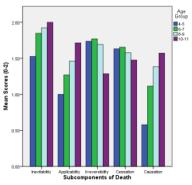


Figure 1: Mean scores on the five subcomponents of death across the four age groups.

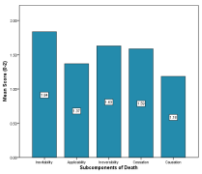


Figure 2: Mean scores for each subcomponent of death for the total sample (N=92).

- Figure 2. illustrates that inevitability ($M = 1.84$, $SD = .37$), was understood first as it was easiest to grasp, and causality ($M = 1.18$, $SD = .71$), the last concept to be understood given its complexity. This partly supports H2.
- A significant positive association between cognitive ability and overall understanding of death was also revealed ($r = .20$, $p < .05$), supporting H3.
- Initial findings highlight that British children do develop their understanding of death at different rates according to age and cognitive competence.
- To support bereaved children, coping strategies and literature should reflect not only their age but also cognitive ability, with reference to the five subcomponents of death.
- Further research with a larger and more diverse sample to explore the impact of socio-cultural factors is required.

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"*Mary hid herself in the nursery…nobody thought of her, nobody wanted her and strange things happened of which she knew nothing…she had neither father nor mother* " – Secret Garden (Burnett, 1911)

Appendix Q

Poster presentation for UEA ClinPsyD conference September 2014

Doctoral Programme in Clinical Psychology

Clin.Psy.D. Trainee Research Conference 2014

The Development of Children's Understanding of Death

Michelle Hopkins & Dr Georgia Panagiotaki

"*They (his parents) were dead and gone…poor James was still very much alive, and all at once found himself alone and very frightened in a vast unfriendly world*" – James & the Giant Peach (Dahl, 1961)

Background

- Considerable discrepancy exists between the age children begin to understand what happens when someone dies, and when this is fully integrated into their conceptual framework.
- Children acquire a mature concept of death (understanding of all five subcomponents) according to age (Slaughter & Griffiths, 2007), and cognitive ability (Hunter & Smith, 2008).
- Findings from the above studies reflect a staged model of death concept acquisition.

- Piagetian tasks (e.g., class inclusion, conservation), known to underestimate children's ability, were used to assess cognitive ability in previous studies.
- Limited published research exploring 4-11 year old British children's understanding of death.

Research Hypotheses

H1. Younger children will have a less sophisticated understanding of death as a biological event than older children.

H2. Irreversibility will be understood first as it is considered to be the easiest to grasp, and causality acquired last being the most complex idea.

H3. Cognitive ability as measured by intelligence quotient (IQ), will be positively associated with a mature concept of death.

Design/Methodology

- Cross-sectional, between-groups, mixed-methods design.
- Opportunity sample (N = 92; m = 41, f = 51) of children recruited from four primary schools across Suffolk.
- Children allocated to one of four groups: 4-5yrs. (N = 19), 6-7yrs. (N = 26), 8-9yrs. (N = 26), 10-11yrs. (N = 21).
- Death Interview (DI; Slaughter & Griffiths, 2007), age-appropriate standardised cognitive assessments (Wechsler, 2003; 2011), and parent questionnaire for demographics.
- ANOVA, MANOVA & Gabriel's post-hoc comparisons

Results

- **H1**: Significant main effect of age on DI scores
  F (3, 81) = 5.37, p < .01, partial η^2 = .17

  4-5yr. olds (M = 6.5, SD = 1.81) scored significantly lower than 8-9yr. olds (M = 8.0, SD = 2.01), and 10-11 yr. olds (M = 8.0, SD = 1.50) but not 6-7yr. olds (M = 7.7, SD = 1.72), ps < .05.
- **H2**: Significant main effect of age on irreversibility
  F (3, 88) = 3.02, p < .05, partial η^2 = .09

  6-7yr. olds (M = 1.8, SD = .43) scored significantly higher on irreversibility than 10-11yr. olds (M = 1.3, SD = .78), ps < .05.
- **H2**: Significant main effect of age on causality
  F(3, 88) = 3.76, p < .001, partial η^2 = .25

  4-5yr. olds (M = .6, SD = .61) scored significantly lower than 6-7 yr. olds (M = 1.1, SD = .65), 8-9yr. olds (M = 1.4, SD = .64), and 10-11yr. olds (M = 1.6, SD = .61), ps < .001.

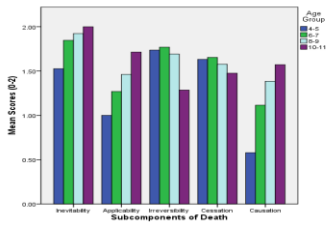

Figure 1: Mean scores on the five subcomponents of death across the four age groups.

- **H3**: Significant main effect of IQ on children's death sores
  F(3, 88) = 3.76, p < .001, partial η^2 = .25

  Children with low average IQ scored significantly lower (M = 6.1, SD = 2.03) than those with average IQ (M = 7.7, SD = 1.77) and high average IQ (M = 7.8. SD = 1.77), ps < .05.

Conclusions

- Children aged 10-11 yrs. old appear to question the finality of death (irreversibility), and may hold a dualistic view where both a spiritual and biological dimension co-exists.
- The staged model of death concept acquisition is questionable.
- When supporting bereaved children, adaptations for those with learning difficulties/disabilities are required.
- Further research to explore the impact of socio-cultural factors, particularly religion, is necessary.

"*Mary hid herself in the nursery…nobody thought of her, nobody wanted her and strange things happened of which she knew nothing…she had neither father nor mother* " – Secret Garden (Burnett, 1911)